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## SEPTEMBER—1904.

|    |    |                                                               |
|----|----|---------------------------------------------------------------|
| 1  | Th | Last day for Entry for Matriculation and Supplementary Exams. |
| 2  | F  |                                                               |
| 3  | S  |                                                               |
| 4  | S  |                                                               |
| 5  | M  |                                                               |
| 6  | Tu |                                                               |
| 7  | W  |                                                               |
| 8  | Th |                                                               |
| 9  | F  |                                                               |
| 10 | S  |                                                               |
| 11 | S  |                                                               |
| 12 | M  | Matriculation Examination commences.                          |
| 13 | Tu |                                                               |
| 14 | W  |                                                               |
| 15 | Th |                                                               |
| 16 | F  |                                                               |
| 17 | S  |                                                               |
| 18 | S  |                                                               |
| 19 | M  | Supplementary Examinations commence.                          |
| 20 | Tu |                                                               |
| 21 | W  |                                                               |
| 22 | Th |                                                               |
| 23 | F  |                                                               |
| 24 | S  |                                                               |
| 25 | S  |                                                               |
| 26 | M  |                                                               |
| 27 | Tu |                                                               |
| 28 | W  | Meeting of the Senate.                                        |
| 29 | Th | <i>MICHAELMAS DAY.</i>                                        |
| 30 | F  |                                                               |

## OCTOBER—1904.

|    |    |                                                                                                         |
|----|----|---------------------------------------------------------------------------------------------------------|
| 1  | S  | Last day for applications for Walter Myers Travelling Studentship.                                      |
| 2  | W  |                                                                                                         |
| 3  | M  | <b>OPENING OF UNIVERSITY SESSION.</b> Last day for applications for the Sydenham Scholarships.          |
| 4  | Tu |                                                                                                         |
| 5  | W  | Meeting of the Council.                                                                                 |
| 6  | Th |                                                                                                         |
| 7  | F  |                                                                                                         |
| 8  | S  |                                                                                                         |
| 9  | W  |                                                                                                         |
| 10 | M  |                                                                                                         |
| 11 | Tu |                                                                                                         |
| 12 | W  | Meeting of the Faculty of Arts. Last day for applications for Entrance Scholarship for Dental Students. |
| 13 | Th | Meeting of the Faculty of Science.                                                                      |
| 14 | F  |                                                                                                         |
| 15 | S  |                                                                                                         |
| 16 | W  |                                                                                                         |
| 17 | M  |                                                                                                         |
| 18 | Tu | Meeting of Library Committee.                                                                           |
| 19 | W  | Meeting of the Senate.                                                                                  |
| 20 | Th |                                                                                                         |
| 21 | F  |                                                                                                         |
| 22 | S  |                                                                                                         |
| 23 | W  |                                                                                                         |
| 24 | M  |                                                                                                         |
| 25 | Tu |                                                                                                         |
| 26 | W  |                                                                                                         |
| 27 | Th |                                                                                                         |
| 28 | F  |                                                                                                         |
| 29 | S  |                                                                                                         |
| 30 | W  |                                                                                                         |
| 31 | M  |                                                                                                         |

# NOVEMBER—1904.

|    |    |                                                             |
|----|----|-------------------------------------------------------------|
| 1  | Tu |                                                             |
| 2  | W  | Meeting of the Council.                                     |
| 3  | Th |                                                             |
| 4  | F  |                                                             |
| 5  | S  |                                                             |
| 6  | S  |                                                             |
| 7  | M  | Last day for entry for M.B., Ch.B. and M.D. Exams.          |
| 8  | Tu |                                                             |
| 9  | W  | King Edward VII. born 1841. Meeting of the Faculty of Arts. |
| 10 | Th | Meeting of the Faculty of Science.                          |
| 11 | F  |                                                             |
| 12 | S  |                                                             |
| 13 | S  |                                                             |
| 14 | M  |                                                             |
| 15 | Tu |                                                             |
| 16 | W  | Meeting of the Senate.                                      |
| 17 | Th |                                                             |
| 18 | F  |                                                             |
| 19 | S  |                                                             |
| 20 | S  |                                                             |
| 21 | M  |                                                             |
| 22 | Tu |                                                             |
| 23 | W  |                                                             |
| 24 | Th |                                                             |
| 25 | F  |                                                             |
| 26 | S  |                                                             |
| 27 | S  |                                                             |
| 28 | M  | M.B., Ch.B. and M.D. Examinations commence.                 |
| 29 | Th |                                                             |
| 30 | W  |                                                             |

## DECEMBER—1904.

|    |              |                                                                 |
|----|--------------|-----------------------------------------------------------------|
| 1  | Th           | Meeting of the Faculty of Arts.                                 |
| 2  | F            |                                                                 |
| 3  | S            |                                                                 |
| 4  | <del>S</del> |                                                                 |
| 5  | M            |                                                                 |
| 6  | Tu           |                                                                 |
| 7  | W            | Meeting of the Council.                                         |
| 8  | Th           | Meeting of the Faculty of Science.                              |
| 9  | F            |                                                                 |
| 10 | S            |                                                                 |
| 11 | <del>S</del> |                                                                 |
| 12 | M            | Terminal Examinations commence.                                 |
| 13 | Tu           |                                                                 |
| 14 | W            | Meeting of the Senate.                                          |
| 15 | Th           |                                                                 |
| 16 | F            |                                                                 |
| 17 | S            | <b>WINTER TERM ENDS.</b>                                        |
| 18 | <del>S</del> |                                                                 |
| 19 | M            | Last day for entry for D.P.H. and B.Sc. in Public Health Exams. |
| 20 | Tu           |                                                                 |
| 21 | W            |                                                                 |
| 22 | Th           |                                                                 |
| 23 | F            |                                                                 |
| 24 | S            |                                                                 |
| 25 | <del>S</del> | <i>CHRISTMAS DAY.</i>                                           |
| 26 | M            | Bank Holiday.                                                   |
| 27 | Tu           |                                                                 |
| 28 | W            |                                                                 |
| 29 | Th           |                                                                 |
| 30 | F            |                                                                 |
| 31 | S            |                                                                 |

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 JANUARY—1905.
 

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|    |    |                                                                                        |
|----|----|----------------------------------------------------------------------------------------|
| 1  | S  |                                                                                        |
| 2  | M  | Last day for applications for 1851 Exhibition Science Research Scholarship.            |
| 3  | Tu |                                                                                        |
| 4  | W  | Meeting of the Council.                                                                |
| 5  | Th |                                                                                        |
| 6  | F  |                                                                                        |
| 7  | S  |                                                                                        |
| 8  | S  |                                                                                        |
| 9  | M  |                                                                                        |
| 10 | Tu |                                                                                        |
| 11 | W  |                                                                                        |
| 12 | Th |                                                                                        |
| 13 | F  |                                                                                        |
| 14 | S  |                                                                                        |
| 15 | S  |                                                                                        |
| 16 | M  | <b>SPRING TERM COMMENCES.</b> D.P.H. and B.Sc. in Public Health Examinations commence. |
| 17 | Tu | Meeting of Library Committee.                                                          |
| 18 | W  | Meeting of the Faculty of Arts.                                                        |
| 19 | Th | Meeting of the Faculty of Science.                                                     |
| 20 | F  |                                                                                        |
| 21 | S  |                                                                                        |
| 22 | S  | Queen Victoria died, 1901                                                              |
| 23 | M  |                                                                                        |
| 24 | Tu |                                                                                        |
| 25 | W  | Meeting of the Senate.                                                                 |
| 26 | Th |                                                                                        |
| 27 | F  |                                                                                        |
| 28 | S  |                                                                                        |
| 29 | S  |                                                                                        |
| 30 | M  |                                                                                        |
| 31 | Tu |                                                                                        |

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## FEBRUARY—1905.

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|    |          |                                                                             |
|----|----------|-----------------------------------------------------------------------------|
| 1  | W        | Meeting of the Council.                                                     |
| 2  | Th       |                                                                             |
| 3  | F        |                                                                             |
| 4  | S        |                                                                             |
| 5  | <i>S</i> |                                                                             |
| 6  | M        |                                                                             |
| 7  | Tu       |                                                                             |
| 8  | W        | Meeting of the Faculty of Arts.                                             |
| 9  | Th       | Meeting of the Faculty of Science.                                          |
| 10 | F        |                                                                             |
| 11 | S        |                                                                             |
| 12 | <i>S</i> |                                                                             |
| 13 | M        |                                                                             |
| 14 | Tu       |                                                                             |
| 15 | W        | Meeting of the Senate.                                                      |
| 16 | Th       |                                                                             |
| 17 | F        |                                                                             |
| 18 | S        |                                                                             |
| 19 | <i>S</i> |                                                                             |
| 20 | M        |                                                                             |
| 21 | Tu       |                                                                             |
| 22 | W        |                                                                             |
| 23 | Th       | Sir Josiah Mason born, 1795. Founder's Day; University<br>Buildings Closed. |
| 24 | F        |                                                                             |
| 25 | S        |                                                                             |
| 26 | <i>S</i> |                                                                             |
| 27 | M        |                                                                             |
| 28 | Tu       |                                                                             |

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 MARCH—1905.
 

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|    |              |                                                          |
|----|--------------|----------------------------------------------------------|
| 1  | W            | Meeting of the Council.                                  |
| 2  | Th           |                                                          |
| 3  | F            |                                                          |
| 4  | S            |                                                          |
| 5  | <del>S</del> |                                                          |
| 6  | M            |                                                          |
| 7  | Tu           |                                                          |
| 8  | W            | Meeting of the Faculty of Arts. <i>ASH WEDNESDAY.</i>    |
| 9  | Th           | Meeting of the Faculty of Science                        |
| 10 | F            |                                                          |
| 11 | S            |                                                          |
| 12 | <del>S</del> |                                                          |
| 13 | M            |                                                          |
| 14 | Tu           |                                                          |
| 15 | W            | Meeting of the Senate.                                   |
| 16 | Th           |                                                          |
| 17 | F            |                                                          |
| 18 | S            |                                                          |
| 19 | <del>S</del> |                                                          |
| 20 | M            |                                                          |
| 21 | Tu           |                                                          |
| 22 | W            |                                                          |
| 23 | Th           |                                                          |
| 24 | F            | Royal Charter of University of Birmingham granted, 1900. |
| 25 | S            | <i>LADY DAY.</i>                                         |
| 26 | <del>S</del> |                                                          |
| 27 | M            | Terminal Examinations commence.                          |
| 28 | Tu           |                                                          |
| 29 | W            |                                                          |
| 30 | Th           |                                                          |
| 31 | F            |                                                          |

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## APRIL—1905.

|    |    |                                                                                   |
|----|----|-----------------------------------------------------------------------------------|
| 1  | S  | SPRING TERM ENDS.                                                                 |
| 2  | Sp |                                                                                   |
| 3  | M  |                                                                                   |
| 4  | Tu |                                                                                   |
| 5  | W  | Meeting of the Council.                                                           |
| 6  | Th |                                                                                   |
| 7  | F  |                                                                                   |
| 8  | S  |                                                                                   |
| 9  | Sp |                                                                                   |
| 10 | M  |                                                                                   |
| 11 | Tu |                                                                                   |
| 12 | W  |                                                                                   |
| 13 | Th |                                                                                   |
| 14 | F  |                                                                                   |
| 15 | S  |                                                                                   |
| 16 | Sp |                                                                                   |
| 17 | M  |                                                                                   |
| 18 | Tu |                                                                                   |
| 19 | W  |                                                                                   |
| 20 | Th |                                                                                   |
| 21 | F  | GOOD FRIDAY.                                                                      |
| 22 | S  |                                                                                   |
| 23 | Sp | EASTER DAY.                                                                       |
| 24 | M  | EASTER MONDAY. Bank Holiday.                                                      |
| 25 | Tu |                                                                                   |
| 26 | W  | SUMMER TERM COMMENCES.                                                            |
| 27 | Th |                                                                                   |
| 28 | F  |                                                                                   |
| 29 | S  | Last day for applications for Heslop Memorial Medal and<br>Constance Naden Medal. |
| 30 | Sp |                                                                                   |



## MAY—1905.

|    |    |                                                                                                                                                                                                                                                                                                                                  |
|----|----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1  | M  | <b>Last day for Entry for University Exams.</b> (excepting Final M.B., Ch.B., for Past Students, M.D., Ch.M. Exams, Entrance Exam. to School of Modern Languages, and D.P.H. and B.Sc. in Public Health Exams). Last day for applications from Associates of M.U.C. for B.A., B.Sc., or M.B. Degrees.<br>Meeting of the Council. |
| 2  | Tu |                                                                                                                                                                                                                                                                                                                                  |
| 3  | W  |                                                                                                                                                                                                                                                                                                                                  |
| 4  | Th |                                                                                                                                                                                                                                                                                                                                  |
| 5  | F  | Last day for entry for Matriculation Examination.                                                                                                                                                                                                                                                                                |
| 6  | S  |                                                                                                                                                                                                                                                                                                                                  |
| 7  | S  |                                                                                                                                                                                                                                                                                                                                  |
| 8  | M  |                                                                                                                                                                                                                                                                                                                                  |
| 9  | Tu |                                                                                                                                                                                                                                                                                                                                  |
| 10 | W  | Meeting of the Faculty of Arts.                                                                                                                                                                                                                                                                                                  |
| 11 | Th | Meeting of the Faculty of Science.                                                                                                                                                                                                                                                                                               |
| 12 | F  |                                                                                                                                                                                                                                                                                                                                  |
| 13 | S  | Last day for receiving Theses for University Examinations. Last day for entry for M.B., Ch.B. for Past Students, and M.D. and Ch.M. Exams.                                                                                                                                                                                       |
| 14 | S  |                                                                                                                                                                                                                                                                                                                                  |
| 15 | M  |                                                                                                                                                                                                                                                                                                                                  |
| 16 | Tu | Meeting of Library Committee.                                                                                                                                                                                                                                                                                                    |
| 17 | W  | Meeting of the Senate.                                                                                                                                                                                                                                                                                                           |
| 18 | Th |                                                                                                                                                                                                                                                                                                                                  |
| 19 | F  |                                                                                                                                                                                                                                                                                                                                  |
| 20 | S  |                                                                                                                                                                                                                                                                                                                                  |
| 21 | S  |                                                                                                                                                                                                                                                                                                                                  |
| 22 | M  | Last day for entry for Entrance Examination to School of Modern Languages.                                                                                                                                                                                                                                                       |
| 23 | Tu |                                                                                                                                                                                                                                                                                                                                  |
| 24 | W  |                                                                                                                                                                                                                                                                                                                                  |
| 25 | Th |                                                                                                                                                                                                                                                                                                                                  |
| 26 | F  |                                                                                                                                                                                                                                                                                                                                  |
| 27 | S  |                                                                                                                                                                                                                                                                                                                                  |
| 28 | S  |                                                                                                                                                                                                                                                                                                                                  |
| 29 | M  | Last day for entry for D.P.H. and B.Sc. in Public Health Exams.                                                                                                                                                                                                                                                                  |
| 30 | Tu |                                                                                                                                                                                                                                                                                                                                  |
| 31 | W  |                                                                                                                                                                                                                                                                                                                                  |

## JUNE—1905.

|    |    |                                                                                                                                                                                    |
|----|----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1  | Th | Last day for application for Research, Bowen & Priestley Scholarships. Last day for applications for Bunce Prize and Gladstone Memorial Prize.                                     |
| 2  | F  |                                                                                                                                                                                    |
| 3  | S  |                                                                                                                                                                                    |
| 4  | S  |                                                                                                                                                                                    |
| 5  | M  | Matriculation Examination commences.                                                                                                                                               |
| 6  | Tu |                                                                                                                                                                                    |
| 7  | W  | Meeting of the Council.                                                                                                                                                            |
| 8  | Th | Meeting of the Faculty of Science.                                                                                                                                                 |
| 9  | F  |                                                                                                                                                                                    |
| 10 | S  |                                                                                                                                                                                    |
| 11 | S  | <i>WHITSUN DAY.</i>                                                                                                                                                                |
| 12 | M  | Bank Holiday.                                                                                                                                                                      |
| 13 | Tu | 2nd Year Arts, B.A., B.Sc., 2nd, 3rd & 4th Engineering, 2nd & 3rd Commerce, Education and Brewing Diplomas Exams. commence.                                                        |
| 14 | W  | Meeting of the Faculty of Arts.                                                                                                                                                    |
| 15 | Th |                                                                                                                                                                                    |
| 16 | F  | 3rd Medical Examination.                                                                                                                                                           |
| 17 | S  |                                                                                                                                                                                    |
| 18 | S  |                                                                                                                                                                                    |
| 19 | M  | Inter-Sci., 1st Engineering, Inter-Arts, 1st Commerce, M.A., 1st and 4th Med., M.B., Ch.B., B.D.S., M.D., Ch.M. Exams., and Entrance Exam. to School of Modern Languages commence. |
| 20 | Tu |                                                                                                                                                                                    |
| 21 | W  | Meeting of the Senate.                                                                                                                                                             |
| 22 | Th |                                                                                                                                                                                    |
| 23 | F  |                                                                                                                                                                                    |
| 24 | S  | <i>MIDSUMMER DAY.</i>                                                                                                                                                              |
| 25 | S  |                                                                                                                                                                                    |
| 26 | M  | D.P.H. and B.Sc. in Public Health, and 2nd Medical Examinations commence.                                                                                                          |
| 27 | Tu |                                                                                                                                                                                    |
| 28 | W  |                                                                                                                                                                                    |
| 29 | Th |                                                                                                                                                                                    |
| 30 | F  |                                                                                                                                                                                    |

## JULY—1905.

1 S

2 *S*

3 M

4 Tu

5 W

6 Th

7 F

8 S SUMMER TERM ENDS.

9 *S*

10 M

11 Tu

12 W

13 Th

14 F

15 S

16 *S*

17 M

18 Tu Meeting of Library Committee.

19 W

20 Th

21 F

22 S

23 *S*

24 M

25 Tu

26 W

27 Th

28 F

29 S

30 *S*

31 M

## AUGUST—1905.

|    |    |                                                                      |
|----|----|----------------------------------------------------------------------|
| 1  | Tu | The Library is closed during the whole of August.                    |
| 2  | W  |                                                                      |
| 3  | Th |                                                                      |
| 4  | F  |                                                                      |
| 5  | S  |                                                                      |
| 6  | S  | Bank Holiday.                                                        |
| 7  | M  |                                                                      |
| 8  | Tu |                                                                      |
| 9  | W  |                                                                      |
| 10 | Th |                                                                      |
| 11 | F  |                                                                      |
| 12 | S  |                                                                      |
| 13 | S  |                                                                      |
| 14 | M  |                                                                      |
| 15 | Tu |                                                                      |
| 16 | W  |                                                                      |
| 17 | Th |                                                                      |
| 18 | F  |                                                                      |
| 19 | S  |                                                                      |
| 20 | S  |                                                                      |
| 21 | M  |                                                                      |
| 22 | Tu |                                                                      |
| 23 | W  |                                                                      |
| 24 | Th |                                                                      |
| 25 | F  |                                                                      |
| 26 | S  |                                                                      |
| 27 | S  |                                                                      |
| 28 | M  |                                                                      |
| 29 | T  |                                                                      |
| 30 | W  |                                                                      |
| 31 | Th | Last day for Entry for Matriculation and Supplementary Examinations. |

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SEPTEMBER—1905.

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1 F

2 S

3 ~~S~~

4 M

5 Tu

6 W

7 Th

8 F

9 S

10 ~~S~~

11 M Matriculation Examination commences.

12 Tu

13 W

14 Th

15 F

16 S

17 ~~S~~

18 M Supplementary Examinations commence.

19 Tu

20 W

21 Th

22 F

23 S

24 ~~S~~

25 M

26 Tu

27 W

28 Th

29 F *MICHAELMAS DAY.*30 S

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UNIVERSITY OF BIRMINGHAM.

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# University of Birmingham.

## CHARTER.

**Victoria, by the Grace of God,** of the United Kingdom of Great Britain and Ireland, Queen, Defender of the Faith.

**To all to whom** these presents shall come, greeting :

**Whereas** Petitions have been presented to us by the Mason University College of Birmingham by the Mayor Aldermen and Citizens of the City of Birmingham in the County of Warwick by the School Board for the said City by the Governors of the Grammar School of King Edward VI. in the said City and by others praying Us to erect within the said City for the promotion of Arts Sciences and Learning a University and to grant a Charter with such appropriate provisions therein in that behalf as shall seem to Us meet and fit.

And whereas we have taken the said Petitions into Our Royal consideration and are minded to accede thereto.

Now therefore Know Ye that We by Virtue of Our Royal Prerogative in that behalf and all other powers enabling Us so to do of Our special grace certain knowledge and mere motion by these Presents do for Us Our Heirs and Successors grant will direct and ordain as follows :—

1.—There shall be from henceforth for ever in Our said City of Birmingham a University by the name and style of “The University of Birmingham” with Faculties of Science Arts Medicine and Commerce and such other Faculties as the Statutes of the University may from time to time prescribe.

2.—Our trusty and well-beloved Councillor Joseph Chamberlain the persons named in the Schedule hereto as members of the Court of Governors and of the Council and the Members for the time being of the Court of Governors the Council and the Senate of the University the Chancellor the Pro-Chancellor the Vice-Chancellor the Pro-Vice-Chancellor and the Principal

and Vice-Principal of the University for the time being and all others who shall pursuant to this Our Charter and the Statutes of the University for the time being be Members of the University are hereby created and from henceforth for ever shall be one body politic and corporate with perpetual succession and a Common Seal by the name and style of "The University of Birmingham" with full power and capacity by and in such name to sue and be sued and to take and hold land and to do all other lawful acts whatsoever and with full right authority power and capacity without any further or other licence by virtue of this Our Charter to take and hold such lands tenements and hereditaments as may be for the time being occupied by or on behalf of the said Corporation for the transaction of its business and the actual carrying out of its purposes and also in addition other lands tenements and hereditaments to the annual value of £50,000 according to the annual value thereof at the respective times when the same shall be respectively taken.

3.—We Our Heirs and Successors Kings and Queens of the Kingdom aforesaid shall be and remain the Visitor and Visitors of the University of Birmingham through the Lord President of Our Council for the time being.

4.—There shall be a Chancellor of the said University and one Pro-Chancellor who subject to the Statutes of the University shall act for the Chancellor pending a vacancy in that office or during the absence or inability of the Chancellor.

The first Chancellor shall be Our said trusty and well-beloved Councillor Joseph Chamberlain.

The Vice-Chancellor for the time being shall be Pro-Chancellor.

5.—There shall be a Vice-Chancellor of the said University and one Pro-Vice-Chancellor who subject to the Statutes of the University shall act for the Vice-Chancellor pending a vacancy in that Office or during the absence or inability of the Vice-Chancellor.

6.—There shall be a Principal of the University and one Vice-Principal who subject to the Statutes of the University shall act for the Principal pending a vacancy in that office or during the absence or inability of the Principal.

There shall also be a Dean of each of the Faculties within the University. The Dean of the Faculty of Medicine shall be appointed by the Council from among the Members of that Faculty. The Deans of the other Faculties shall be appointed as provided by the Statutes of the University.

The Principal shall be from time to time appointed by Us Our Heirs and Successors through the Lord President of Our Council for the time being.

The first Vice-Principal shall be Robert Samuel Heath, M.A., D.Sc., now Principal of Mason University College.

The first Dean of the Faculty of Medicine shall be Bertram Coghill Alan Windle, M.A., M.D., D.Sc., F.R.S.

7.—The Supreme Governing Body of the University shall be the Court of Governors and subject to this Charter the Statutes of the University and the Law of the Realm the Court of Governors shall have absolute power within the University.

The first Members of the Court of Governors shall be the persons nominated in the First Schedule to these presents.

Statutes of the University shall regulate the powers and business of the Court the election and continuance in office of the Members of the Court (including the continuance in office of the first Members) the filling of vacancies among the Members and all other matters relative to the Court which it may be thought are proper to be so regulated. Women shall be eligible to be Members of the Court of Governors.

The Chancellor shall be ex-officio head of the University and a Member and President of the Court of Governors.

The Pro-Chancellor shall be ex-officio a member of the Court of Governors.

8.—There shall be a Council of the University which shall subject to the Statutes of the University and the control of the Court of Governors as regulated by the said Statutes have the government and control of the finances of the University and of the discipline practical affairs business and work of the University.

The Vice-Chancellor shall be ex-officio a member and President of the Council.

The Pro-Vice-Chancellor shall be ex-officio a member of the Council.

The Principal Vice-Principal and the Deans of the Faculties shall be ex-officio members of the Council.

There shall also be one Member of the Council who shall be elected by the Faculty of Medicine of the University.

At no time shall the Members of the Council who are members of the Senate be more in number than the number of Members of the Council divided by four.

The first Members of the Council shall be the persons nominated in the First Schedule to these presents.

Statutes of the University shall regulate the performance of the duties of the Council the election and continuance in office of the Members of the Council (including the continuance in office of the first Members) the filling of vacancies among the Members and all other matters relative to the Council which it may be thought are proper to be so regulated.

9.—There shall be a Senate of the University consisting of the Principal Vice-Principal Deans of Faculties and all the Professors of the University which shall subject to Statutes of the University and the control and approval of the Council have the regulation and control of the Curriculum and Education afforded by the University and the Discipline of the Students of the University.

The Principal shall be Ex-officio President of the Senate.

Statutes of the University shall regulate and define the powers and business of the Senate and all other matters relative to the Senate which it may be thought are proper to be so regulated.

10.—The University shall be both a Teaching and an Examining University and shall further the prosecution of original research in all its branches.

The University may confer on persons of either sex Degrees Diplomas and Certificates whether Honorary Substantive or otherwise and such Degrees Diplomas and Certificates shall be conferred and held subject to any such provisions as may be made by the Statutes and Ordinances of the University with reference thereto.

No religious test of any kind whatsoever shall be applied in the University or imposed upon or observed by any Member Graduate Student or Office Holder of the University.

11.—The University may admit to affiliation with it or to any of its privileges any College or Institution or the Members or Students thereof upon such terms and conditions and subject to such regulations as may from time to time be prescribed by the Statutes of the University.

12.—The Court of Governors may from time to time make Statutes for the University which shall carry into effect this Charter and its provisions and may regulate and govern and contain prescriptions in regard to the affairs business work and interests of the University and those of the Corporate Members thereof as such and the status appointment and removal of the Members Chancellor Pro-Chancellor Vice-Chancellor Pro-Vice-Chancellor Principal Vice-Principal and Dean of the Faculty of Medicine and Officers thereof and may contain all such provisions as the Court may deem it fit and meet should be made with respect to or for the governing of the University its Constituent parts and Members or to promote the objects of these presents.

The Council shall have such power to suggest draft or propose to the Court Statutes to be made by the Court as the Statutes of the University may provide for and it shall be the duty of the Court to duly consider the same.

The first Statutes of the University shall be those Scheduled to these presents and they are hereby declared to be valid and within the powers by this Article of these presents conferred.

The Statutes may add to amend alter or repeal the Statutes from time to time in force (including the first) and the power to make Statutes shall not be limited by or with reference to the first or any subsequent Statutes or the several subject matters therein dealt with.

Any Statutes to be hereafter made which are not repugnant to the provisions of this Charter or the Laws of the Realm shall be operative and have effect when allowed by Us or by any Committee of Our Most Honourable Privy Council and not before. Such allowance shall be conclusive evidence of the Statutes so allowed being authorized by the provisions of this Charter.

13.—The Court of Governors the Council and the Senate respectively may from time to time make regulations for Governing subject to these presents and the Statutes of the University the proceedings of those bodies respectively. The power to make regulations shall include the power to add to amend alter or repeal any theretofore made.

The Council shall make the first regulations for the Court of Governors and the Council. The regulations for the Court of Governors require the approval of the said Court.

14.—It shall be the duty of the Council from time to time to bring before the Court of Governors and the Senate any matters which in its opinion should be dealt with by these bodies respectively.

15.—There shall be a Guild of Graduates of the University and a Guild of its Students each of whom

shall have such and so many Representatives on the Court of Governors as may be provided by the Statutes of the University. The constitution functions privileges and all other matters connected with the said Guilds requiring to be prescribed shall be prescribed as may be provided by the Statutes.

16.—The Court of Governors may at any time alter amend or add to these presents and their provisions by a Special Resolution in that behalf and such alteration amendment or addition shall when allowed by Us Our Heirs or Successors under the sign manual or otherwise as We or They shall deem meet become effectual so that these presents shall thenceforward continue and operate as though they had been originally granted and made as so altered amended or added to as aforesaid. This Article of these presents shall apply to this Charter as altered amended or added to in manner aforesaid. A Special Resolution means a Resolution passed and confirmed in the manner provided by the Statutes of the University.

17.—Our Royal Will and Pleasure is that these presents shall ever be construed benevolently and in every case most favourably to the University of Birmingham and the promotion of the objects of this Our Charter.

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## FIRST SCHEDULE.

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### MEMBERS OF THE COURT OF GOVERNORS.

The following persons shall be the first members of the said Court :—

#### Class (I.) LIFE GOVERNORS.

The Most Honourable the Marquess of Hertford, the Right Honourable the Earl of Dudley, the Right Honourable the Earl of Harrowby, the Right Honourable the Earl of Warwick, the Right Honourable the Earl of Bradford, the Right Honourable the Earl of Dartmouth, the Right Honourable the Earl of Denbigh, the Right

Honourable the Viscount Cobham, the Right Rev. John Percival (Lord Bishop of Hereford), the Right Honourable Lord Burton, the Right Honourable Lord Calthorpe, the Right Honourable Lord Leigh, the Right Honourable Lord Norton, the Right Honourable Lord Windsor, the Right Honourable Lord Wrottesley, the Right Honourable Joseph Chamberlain, the Right Honourable Sir Henry Hartley Fowler, the Right Honourable William Kenrick, Sir Henry Wiggin, Baronet, Sir John Jaffray, Baronet, Sir Benjamin Hingley, Baronet, Sir John Charles Holder, Baronet, Sir Balthazar Walter Foster, Sir Alfred Hickman, Sir John Benjamin Stone, Sir Richard Tangye, Sir Willoughby Francis Wade, James Gibbs Blake, George James Johnson, Francis Corder Clayton, George Hamilton Kenrick, Robert Francis Martineau, Edward Lawley Parker, Osmund Airy, William Ansell, Edward Ansell, William Beilby Avery, Arthur Albright, George Stacey Albright, William Arthur Albright, William Elijah Benton, Charles Gabriel Beale, Alice Beale, George Edward Belliss, Thomas Barnsley, Francis Seddon Bolton, James Booth, George Cadbury, Elsie Mary Cadbury, Helen Caddick, Andrew Carnegie, Arthur Chamberlain, Joseph Austen Chamberlain, Alexander Macomb Chance, John Homer Chance, Joseph Bennett Clarke, Gilbert Henry Cloughton, William Barwick Cregoe-Colmore, William Thomas Gustavus Cook, John Corbett, Frederick Corbett, Harriet Elizabeth Gertrude Dale, Arthur Stansfeld Dixon, Charles Woolryche Dixon, James Ernest Dixon, Frederick Elkington, Thomas Stratton Fallows, John Feeney, Walter Newton Fisher, William Gibbins, Caroline Gibbins, Thomas Gladstone, Arthur Godlee, William Henry Greenwood, Felix Hadley, Charles Harding, Edith Harrold, Obed Charles Hawkes, Alfred Bradley Holinsworth, Charles Bradley Holinsworth, James Richardson Holliday, John Bernard Hardman, William Harris, Robert Heath, George Hookham, Laurence William Hodson, Walter Loveridge Hodgkinson, Charles Holcroft, William Holcroft, Thomas Vincent Jackson, Frank James, Joseph James, George Hope Johnstone, William Jones, John Arthur Kenrick, Mary Kenrick,



Arthur Keen, Rachel Anna King, Ethel Mary Knox, Thomas Grosvenor Lee, Henry Lea, George Braithwaite Lloyd, John Henry Lloyd, John Pearce Lacy, John Walford Lea, Edward Bindon Marten, Frank McClean, Alfred Morcom, Henry Mitchell, John Manley, Charles Edward Mathews, John Throgmorton Middlemore, George Henry Morley, Edward Nettlefold, Abraham Follett Osler, Alfred Clarkson Osler, Henry Follett Osler, Thomas Parker, Ebenezer Parkes, Charles Andrew Palmer, Richard Peyton, John Phillips, Richard Alfred Pinsent, Hume Chancellor Pinsent, Maurice Pollack, Alfred Henry Poultney, Edwin Rickards, Charles Showell, Howard Samuel Smith, Martyn Josiah Smith, Edward James Smith, William Charles Alston Smith-Ryland, Alexander William Still, Lilian Landon Thomas, Thomas William Thursfield, William Augustus Tilden, George Tangye, Michael Tomkinson, Thomas Turner, Isabel Mary Vardy, John Clough Vaudrey, Thomas Ferdinand Walker, John William Bund Willis-Bund, John Edward Wilson, Joseph Henry Wilkinson, Georgina Tarleton Young, Hugo Joseph Young.

Class (2) Five persons appointed by the Municipal Council of the City of Birmingham.

SIR JAMES SMITH.  
MAURICE POLLACK.  
WILLIAM THOMAS GUSTAV'S COOK.  
JOHN HENRY LLOYD.  
ALFRED JOHN REYNOLDS.

Class (3) One member for each of the County Councils of Warwickshire Worcestershire Staffordshire Shropshire Leicestershire Derbyshire Rutlandshire to be appointed by the respective County Councils and one member for the Council of every County Borough (other than the City of Birmingham) in the said Counties and for the Council of the Borough of Kidderminster to be appointed by the respective Councils and one member for the School Board of every School Board for a County Borough (other than Birmingham) in the said Counties.

|                                             |     |     | <i>Appointed by</i>                          |
|---------------------------------------------|-----|-----|----------------------------------------------|
| The Rev. WILLIAM MacGREGOR...               |     |     | The County Council of Warwickshire.          |
| GEORGE WILLIAM GROSVENOR ...                | ... |     | The County Council of Worcestershire.        |
| FRANCIS ELLIOTT KITCHENER ...               | ... |     | The County Council of Staffordshire.         |
| JAMES PATCHETT ...                          | ... | ... | The County Council of Shropshire.            |
| BENJAMIN HURST ...                          | ... | ... | The County Council of Leicestershire.        |
| GEORGE HERBERT STRUTT ...                   | ... |     | The County Council of Derbyshire.            |
| The Right Hon. the Earl of GAINSBOROUGH ... | ... | ... | The County Council of Rutlandshire.          |
| ALBERT SAMUEL TOMSON ...                    | ... |     | The Council of the City of Coventry.         |
| ALBERT BUCK ...                             | ... | ... | The Council of the City of Worcester.        |
| CHARLES HAYNES ...                          | ... | ... | The Council of the Borough of Dudley.        |
| EDWARD THOMAS HOLDEN ...                    | ... |     | The Council of the Borough of Walsall.       |
| CHARLES AKRILL ...                          | ... | ... | The Council of the Borough of West Bromwich. |
| THOMAS HAMPTON...                           | ... | ... | The Council of the Borough of Hanley.        |
| SAMUEL THEODORE MANDER ...                  | ... |     | The Council of the Borough of Wolverhampton. |
| EDWARD WOOD ...                             | ... | ... | The Council of the Borough of Leicester.     |
| JOHN EYRE RUSSELL ...                       | ... | ... | The Council of the Borough of Derby.         |
| EDWARD PARRY ..                             | ... | ... | The Council of the Borough of Kidderminster. |
| FREDERICK BIRD ...                          | ... | ... | The School Board of the City of Coventry.    |
| ALBERT WEBB ...                             | ... | ... | The School Board of the City of Worcester.   |
| GEORGE HENRY DUNN ...                       | ... | ... | The School Board of the Borough of Dudley.   |
| The Rev. GEORGE BARRANS ...                 | ... |     | The School Board of the Borough of Walsall.  |

*Appointed by*

|                                 |                                                   |
|---------------------------------|---------------------------------------------------|
| THE REV. JOHN WATKISS JONES ... | The School Board of the Borough of West Bromwich. |
| THOMAS WILLIAM HARRISON ...     | The School Board of the Borough of Hanley.        |
| ALEXANDER HUNTER .. ...         | The School Board of the Borough of Wolverhampton. |
| ALEXANDER BAINES ... ..         | The School Board of the Borough of Leicester.     |
| WILLIAM BEMROSE ... ..          | The School Board of the Borough of Derby.         |

Class (4) One person appointed by the Birmingham School Board.

THE REV. JOSEPH WOOD.

Class (5) One person appointed by the Lord President of Her Majesty's Privy Council.

WILLIAM AUGUSTUS TILDEN.

One each by the Chancellors for the time being of the Universities of Oxford Cambridge London Wales the Victoria University and the University of Birmingham.

*Appointed by*

|                               |                                                 |
|-------------------------------|-------------------------------------------------|
| EDWARD BAGNALL POULTON ...    | The Chancellor of the University of Oxford.     |
| WILLIAM NAPIER SHAW ...       | The Chancellor of the University of Cambridge.  |
| JOSEPH LARMOR... ..           | The Chancellor of the University of London.     |
| THE RIGHT HON. LORD RENDEL... | The Chancellor of the University of Wales.      |
| NATHAN BODINGTON ... ..       | The Chancellor of the Victoria University.      |
| (To be appointed)... ..       | The Chancellor of the University of Birmingham. |

One by the Warden of Durham University.

FRANK BYRON JEVONS.

One by the Royal College of Physicians of London,

CHARLES THEODORE WILLIAMS.

One by the Council of the Royal College of Surgeons of England.

SIR WILLIAM MACCORMAC, Baronet.

Class (6) Ten of the Members of Parliament elected for the Boroughs Counties and Divisions of Counties or Boroughs in the said seven Counties.

The Right Hon. JESSE COLLINGS, M.P.

VICTOR MILWARD, M.P.

RICHARD BIDDULPH MARTIN, M.P.

JOHN WILLIAM WILSON, M.P.

WILLIAM WOODALL, M.P.

SIR HENRY HOWE BEMROSE, M.P.

VICTOR C. W. CAVENDISH, M.P.

ALEXANDER HARGREAVES BROWN, M.P.

Lord EDWARD MANNESE, M.P.

ALFRED BALDWIN, M.P.

Class (7) Governors ex-officio.

The Lord Mayor of Birmingham (CHARLES GABRIEL BEALE).

The Right Rev. JOHN JAMES STEWART PEROWNE, D.D.,  
Lord Bishop of Worcester.

The Right Rev. The Hon. AUGUSTUS LEGGE, D.D.,  
Lord Bishop of Lichfield.

The Right Rev. EDWARD ARBUTHNOT KNOX, D.D.,  
Suffragan-Bishop of Coventry.

The Right Rev. EDWARD HUSLEY, D.D., Roman  
Catholic Bishop of Birmingham.

The Chairman of the Guardians of the Poor of the Parish of Birmingham.

STEPHEN GATELEY.

The Chairman of the Birmingham School Board.

The Rev. EGERTON FRANCIS MEAD MACCARTHY.

The Bailiff of the Governors of the Foundation of King Edward VI. Birmingham.

ROBERT SAMUEL HEATH.

The Senior Vice-President of the Birmingham and Midland Institute.

HUME CHANCELLOR PINSENT.

The Head Master of the High School on the Foundation of King Edward VI. Birmingham.

The Rev. ALBERT RICHARD VARDY.

The Head Masters of Rugby Repton Shrewsbury  
Uppingham and Malvern.

The Rev. HERBERT ARMITAGE JAMES ... Rugby.  
The Rev. WILLIAM MORDAUNT FURNEAUX Repton.  
The Rev. H. WHITEHEAD MOSS ... Shrewsbury.  
The Rev. EDWARD CARUS SELWYN ... Uppingham.  
The Rev. SYDNEY RHODES JAMES ... Malvern.

The Head Masters of the Grammar Schools on the  
Foundation of King Edward VI. Birmingham.

The Rev. EGERTON FRANCIS MEAD MACCARTHY.  
The Rev. ARTHUR JAMSON SMITH.  
ERNEST WILLIAM FLOYD.

The Head Mistress of the High School for Girls on  
the Foundation of King Edward VI. Birmingham.

EDITH ELIZABETH MARIE CREAK.

The Head Master of the Birmingham Municipal  
School of Art.

EDWARD RICHARD TAYLOR.

The Principal of the Birmingham Municipal  
Technical School.

WILLIAM EDWARD SUMNER

The President of the Birmingham and Midland  
Counties Branch of the British Medical Association.

BENNETT MAY.

The President of the Central Counties Branch of  
the British Dental Association.

JOHN THOMAS CRAIG.

The President of the Birmingham Clinical Board.

THOMAS FREDERICK CHAVASSE.

The President of the Birmingham Law Society.

JOSEPH ANSELL.

The Chairman of the Committee of the General  
Hospital Birmingham.

JOSEPH HICKMAN PEARSON.

The Chairman of the Committee of the Queen's  
Hospital Birmingham.

HENRY GLAISYER.

The Vice-Principal.

ROBERT SAMUEL HEATH.

The Dean of the Medical Faculty.

BERTRAM COGHILL ALAN WINDLE.

Class (15) One member appointed by each of the following eleven Associations of Voluntary Elementary Schools viz.:—

*Church of England Associations.*

*Diocese of Worcester (comprising the Counties of Worcester and Warwick).*

- (a) The Church Schools Association for the Diocese of Worcester.

The Right Rev. JOHN JAMES STEWART PEROWSE, D.D.,  
Lord Bishop of Worcester.

- (b) The Church Schools Sub-Association for the Archdeaconry of Worcester.

The Ven. WILLIAM WALTERS, Archdeacon of Worcester.

- (c) The Church Schools Sub-Association for the Archdeaconry of Coventry.

The Ven. WILLIAM BREE, D.D., Archdeacon of  
Coventry.

- (d) The Church Schools Sub-Associations for the Archdeaconry of Birmingham.

The Right Rev. EDMUND ARBUTHNOT KNOX, D.D.,  
Bishop-Suffragan of Coventry.

*Diocese of Lichfield.*

The Church Schools Associations for the Diocese of Lichfield as under :

- (e) The Staffordshire Voluntary Schools Association and its two divisions.

The Right Rev. the Hon. AUGUSTUS LEGGE, D.D., Lord  
Bishop of Lichfield.

- (f) The North Staffordshire Sub-Association.

The Rev. CHARLES HARE SIMPKINSON.

- (g) The South Staffordshire Sub-Association.

ISAAC EDWARD EVERETT.

- (h) The North Salop Voluntary Schools Association.

The Rev. THOMAS AUDEN.

*Roman Catholic Association.*

- (i) Birmingham Diocesan Catholic Schools Association. (Comprising the Counties of Worcester Warwick Stafford and Oxford.)

JAMES JOHN PARFITT.

- (j) Midland Association of Wesleyan Day Schools. (Comprising the Counties of Leicester Stafford Warwick Worcester and parts of Cheshire Derby Lincoln (Kesteven) Notts Salop and York (W.R.).

WILLIAM PARKIN.

- (k) The Midland Counties Association of British and other Voluntary Schools. (Comprising the Counties of Derby Leicester Notts Salop Warwick and parts of Staffordshire and Worcestershire.)

ALFRED WILLIAM WORTHINGTON.

## MEMBERS OF THE COUNCIL.

The following persons shall be the first members of the said Council:—

## Class (1)—

The Rt. Hon. JOSEPH CHAMBERLAIN.. Chancellor.

(To be elected) { Vice-Chancellor.  
Pro-Vice-Chancellor.  
Treasurer.  
Principal.

ROBERT SAMUEL HEATH ... Vice-Principal.

BERTHEM COGHILL ALAN WINDLE ... Dean of the Faculty  
of Medicine.

## Class (2)—

The Right Hon. LORD WINDSOR.  
Sir JOHN CHARLES HOLDER, Baronet.  
JAMES GIBBS BLAKE.  
FRANCIS CORDER CLAYTON.  
GEORGE WILLIAM GROSVENOR.  
GEORGE JAMES JOHNSON  
GEORGE HAMILTON KENRICK.  
FRANCIS ELLIOTT KITCHENER.  
The Rev. WILLIAM MACGREGOR.  
SAMUEL THEODORE MANDER.  
ROBERT FRANCIS MARTINEAU.  
HUME CHANCELLOR PINSENT.  
EDWIN RICKARDS.  
CHARLES SHOWELL.

Class (3)—

SIR JAMES SMITH.

MAURICE POLLACK.

WILLIAM THOMAS GUSTAVUS COOK.

JOHN HENRY LLOYD.

ALFRED JOHN REYNOLDS.

Class (4)—To be appointed.

Class (5)—To be appointed.

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## SECOND SCHEDULE.

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# STATUTES OF THE UNIVERSITY.

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## SECTION 1.

### PRELIMINARY.

In these Statutes:—

“University” means the University of Birmingham.

“Court” means the Court of Governors of the University.

“Council” means the Council of the University.

“Senate” means the Senate of the University.

“Faculty” means a Faculty of the University.

“Chancellor” “Pro-Chancellor” “Vice-Chancellor”  
“Pro-Vice-Chancellor” “Principal” “Vice-Principal” and “Deans of the Faculties”  
mean respectively the Chancellor Pro-Chancellor Vice-Chancellor Pro-Vice-Chancellor Principal Vice-Principal and Deans of the Faculties of the University.

“Statutes” means the Statutes of the University.

“Ordinance” means Ordinance made pursuant to the Statutes.

“Regulation” means Regulation made pursuant to the Charter or Statutes.

“Graduate” means Graduate of the University.

“Under-graduate” means Under-graduate Student of the University.

“Professor” means Professor appointed to be such in the University.



- “Treasurer” means Treasurer of the University.  
“Secretary” means Secretary of the University.  
“Registrar” means Registrar of the University.  
“Financial year” means the yearly period for which the accounts and financial affairs of the University are for the time being made up arranged and calculated.  
“Auditor” means Auditor of the University Accounts.  
“Good cause” when used in reference to removal from office membership or place means (1) misbehaviour in office (2) being a lunatic (3) conviction of any felony (4) conviction of any misdemeanour which shall be judged by the authority invested with the power of removal to be of an immoral scandalous or disgraceful nature (5) actual incapacity in or for the execution of the duties of the office membership or place or (6) any misbehaviour of an immoral scandalous or disgraceful nature rendering the holder of the office membership or place unfit in the opinion of the authority invested with the power of removal to continue such holder.
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## SECTION 2.

### THE CHANCELLOR.

- 1.—The Chancellor shall be elected by the Court but his election must to be effective be approved by the Crown.
  - 2.—The Chancellor shall hold office during good behaviour.
  - 3.—The Chancellor may be removed for good cause by the Visitor at the instance of the Court.
  - 4.—The Chancellor may resign by writing addressed to the Court and signed by him.
  - 5.—The above provisions so far as applicable apply to the First Chancellor.
-

## SECTION 3.

## THE VICE-CHANCELLOR AND PRO-VICE-CHANCELLOR.

1.—The Vice-Chancellor and Pro-Vice-Chancellor shall be elected by the Court but if the Chancellor shall object to the election of any person and show cause for his objection to the Visitor the Visitor may in his discretion annul the election.

2.—The said Officers shall hold office during good behaviour.

3.—Either of the said Officers may be removed for good cause by the Visitor at the instance of the Court.

4.—The said Officers may respectively resign by writing signed by them addressed to the Chancellor.

5.—The above provisions so far as applicable shall apply to the First Vice-Chancellor and Pro-Vice-Chancellor.

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SECTION 4.

## PRINCIPAL.

1.—The Principal shall be appointed by the Crown.

2.—The Principal shall hold office during good behaviour.

3.—The Principal may be removed for good cause by the Visitor at the instance of the Court.

4.—The Principal may resign by writing addressed to the Court and signed by him.

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SECTION 5.

## VICE-PRINCIPAL AND DEAN OF THE FACULTY OF MEDICINE.

1.—The Vice-Principal and Dean of the Faculty of Medicine shall be appointed by the Council.

2.—The Vice-Principal and the said Dean shall hold office during good behaviour.

3.—The said Officers may be removed by the Council for good cause provided that such removal shall only be carried by a Resolution of the Council passed at a meeting at which not less than an absolute majority of the whole Council are present and vote and carried at such meeting by the vote of two-thirds of those present.

4.—The said Officers may respectively resign their offices by writing signed by them and addressed to the Vice-Chancellor.

5.—The above provisions so far as applicable shall apply to the First Vice-Principal and Dean of the Faculty of Medicine.

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## SECTION 6.

### THE TREASURER.

1.—The Treasurer shall be appointed by the Court and shall be ex-officio a member of the Court.

2.—The Treasurer's term of office shall be five years from appointment and subject thereto during good behaviour.

3.—The Treasurer shall furnish such security as the Council think fit to require but it shall not be obligatory on the Council to demand security from the Treasurer.

4.—The Treasurer shall be removable from office for good cause by the Council.

5.—The Treasurer may resign by writing under his hand addressed to the Vice-Chancellor.

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## SECTION 7.

### THE SECRETARY.

The Council shall from time to time appoint a Secretary of the University for such term and at such remuneration as it shall deem fit who may be suspended or dismissed by the Council in its discretion.

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## SECTION 8.

## THE REGISTRAR.

The Council shall from time to time appoint a Registrar of the University for such term and at such remuneration as it shall deem fit who may be suspended or dismissed by the Council in its discretion.

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## SECTION 9.

## AUDITOR.

1.—The Court shall from time to time appoint an Auditor who shall not nor shall any member of his firm be a member of any of the University Governing Bodies but shall be a member of the Institute of Chartered Accountants of England and Wales in the active practice of his profession.

2.—The Auditor's term of office shall be three years subject to good behaviour.

3.—The Auditor may be removed for good cause by the Court.

4.—The Auditor shall receive such remuneration as may be agreed to by the Council.

5.—The Auditor shall give such certificates as the Regulations prescribe.

6.—The Auditor may resign in writing addressed to the Council.

7.—Acceptance of office by an Auditor shall be deemed to carry with it an undertaking by the Auditor to the University that every certificate given by him or passing of accounts by him implies that he satisfied himself by full and careful investigation (made by himself or agents for whom he undertakes to be responsible) by every reasonable means within his power or reach and after the exercise of due professional skill that the statements in the certificate are true and accurate and that any accounts certified or passed are complete true and accurate.

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## SECTION 10.

## MEMBERS OF THE UNIVERSITY.

The following persons shall be Members of the University :

## Class A—

Members of the Court.

Members of the Council.

Members of the Senate.

## Class B—

The officers of the University hereinbefore mentioned other than the Auditor.

## Class C—

Such Members of the Teaching Staff of the University as shall under Ordinances or Regulations made by the Council enjoy the status of members.

## Class D—Graduates.

## Class E—Undergraduates.

Membership of the University shall continue so long only as the qualifications above enumerated continue to be possessed by the individual member and expiration of the term of office removal from or resignation of office or withdrawal or resignation of the qualification (as the case may be) shall terminate the individual's membership of the University.

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SECTION 11.

## THE COURT.

1.—The following shall be Members of the Court :

Class (1) The Life Governors who are nominated in the First Schedule to these Presents and their successors.

Class (2) Five persons to be appointed by the Municipal Council of the City of Birmingham.

Class (3) One member for each of the County Councils of Warwickshire Worcestershire Staffordshire Shropshire Leicestershire Derbyshire Rutlandshire to be

appointed by the respective County Councils and one member for the Council of every County Borough (other than the City of Birmingham) in the said Counties and for the Council of the Borough of Kidderminster to be appointed by the respective Councils and one member for the School Board of every School Board for a County Borough (other than Birmingham) in the said Counties and one member for such other Counties Municipal Boroughs or School Boards as the Court by resolution prescribe.

Class (4) One person to be appointed by the Birmingham School Board.

Class (5) Persons appointed as follows—

One by the Lord President for the time being of Her Majesty's Privy Council.

One each by the Chancellors for the time being of the Universities of Oxford Cambridge London Wales the Victoria University and the University of Birmingham.

One by the Warden of Durham University.

One by the Royal College of Physicians of London.

One by the Council of the Royal College of Surgeons of England.

Class (6) Ten of the Members of Parliament elected for the Boroughs Counties and Divisions of Counties or Boroughs in the said seven Counties to be nominated by the Court.

Class (7) The following officials shall be members of the Court ex-officio—

The Lord Mayor of Birmingham.

The Lords Bishops of Worcester and Lichfield the Bishop of Coventry and the Roman Catholic Bishop of Birmingham.

The Chairman of the Guardians of the Poor of the Parish of Birmingham.

The Chairman of the Birmingham School Board.

The Bailiff of the Governors of the Foundation of King Edward VI. Birmingham.

The Senior Vice-President of the Birmingham and Midland Institute.

The Head Master of the High School on the Foundation of King Edward VI. Birmingham.

The Head Masters of Rugby Repton Shrewsbury Uppingham and Malvern.

The Head Masters of the Grammar Schools on the Foundation of King Edward VI. Birmingham.

The Head Mistress of the High School for Girls on the Foundation of King Edward VI. Birmingham.

The Head Master of the Birmingham Municipal School of Art.

The Principal of the Birmingham Municipal Technical School.

The President of the Birmingham and Midland Counties Branch of the British Medical Association.

The President of the Central Counties Branch of the British Dental Association.

The President of the Birmingham Clinical Board.

The President of the Birmingham Law Society.

The Chairman of the Committee of the General Hospital Birmingham.

The Chairman of the Committee of the Queen's Hospital Birmingham.

The Principal and Vice-Principal.

The Deans of the Faculties.

The Professors of the University.

The Honorary Secretary of the Dental Department of the University.

Class (8) Six persons elected by the Guild of Graduates.

Class (9) Three persons elected by the Guild of Undergraduates.

Class (10) Every donor to the funds of the University to the amount or value of £1,000 or upwards whether by one or more donations or by instalments shall be a member for life.

Class (11) Every such donor as in Class (10) referred to making the donation by testament shall be entitled to appoint by testament or by will to authorise his personal representatives on one occasion to appoint some person to be a life member.

Class (12) Any Corporation Local Authority Company Association or Partnership making such a donation as in Class (10) mentioned shall be entitled on one occasion to appoint one person to be a life member.

Class (13) Such representatives of affiliated colleges as may be appointed under Section 20 of these Statutes.

Class (14) Such other persons not exceeding 20 in number as may be elected by the Court who shall be members for such periods as the Court at the time of election appoints.

Class (15) One member to be appointed by each of the following eleven Associations of Voluntary Elementary Schools viz. :

*Church of England Associations.*

*Diocese of Worcester (comprising the Counties of Worcester and Warwick).*

- (a) The Church Schools Association for the Diocese of Worcester.
- (b) The Church Schools Sub Association for the Archdeaconry of Worcester.
- (c) The Church Schools Sub-Association for the Archdeaconry of Coventry.
- (d) The Church Schools Sub-Associations for the Archdeaconry of Birmingham.

*Diocese of Lichfield.*

The Church Schools Associations for the Diocese of Lichfield as under—

- (e) The Staffordshire Voluntary Schools Association and its two divisions.



- (f) The North Staffordshire Sub-Association.
- (g) The South Staffordshire Sub-Association.
- (h) The North Salop Voluntary Schools Association.

*Roman Catholic Association.*

- (i) Birmingham Diocesan Catholic Schools Association. (Comprising the Counties of Worcester Warwick Stafford and Oxford.)
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- (j) Midland Association of Wesleyan Day Schools. (Comprising the Counties of Leicester Stafford Warwick Worcester and parts of Cheshire Derby Lincoln (Kesteven) Notts Salop and York (W.R.)
- (k) The Midland Counties Association of British and other Voluntary Schools. (Comprising the Counties of Derby Leicester Notts Salop Warwick and parts of Staffordshire and Worcester-shire )

2.—Any vacancy occurring in the number of Life Governors in Class (1) may be filled up by the election by the Court of Governors of some fit person to be a Life Governor of the University.

3.—All casual vacancies shall be filled up as soon as conveniently possible by the person or body which appointed the member whose place has become vacant and the appointee to a casual vacancy shall be a member for the residue of the term for which the person in whose place he is appointed was member.

4.—The members in Class (2) shall hold office for five years and one is to vacate office in every year on the 1st day of December. The first vacation to be in the year 1901. The Municipal Council shall as soon as may be after the date of these presents determine the order in which their first appointees shall retire and vacancies by retirement shall be filled at such times and in such manner as the said Council directs.

5.—The members in each of Classes (3) (4) (5) (8) (9) (13) and (15) shall hold office for three years dating from January 1st in every year and vacancies by retirement shall be filled at such time and in such manner as the appointors respectively think fit. The first members shall act as such as from the date of these presents but shall reckon their term of office as from January 1st 1900.

6.—The members in Class (6) shall continue members so long as they continue Members of Parliament and no longer. Vacancies shall be filled as they occur and as soon thereafter as conveniently may be.

7.—Members retiring by effluxion of time may be re-elected.

8.—Members (other than ex-officio members) may be removed for good cause by the Court.

9.—Members need not be members of the bodies by which they are appointed.

10.—Women may be members of the Court.

11.—Where members of the Court comprised within any of the classes aforesaid have not been nominated in the First Schedule to the Charter such members shall be appointed in accordance with this section as soon as may be after the date of the Charter.

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## SECTION 12.

### THE COUNCIL.

1.—The Council shall consist of the following members, viz. :—

Class (1) The Chancellor the Vice-Chancellor Pro-Vice-Chancellor Treasurer Principal Vice-Principal and Dean of the Faculty of Medicine.

Class (2) At least twelve members of the Court appointed by the Court.

Class (3) The five persons appointed by the Birmingham City Council to be members of the Court.

Class (4) The Deans of the Faculties other than the Faculty of Medicine.

Class (5) A representative of the Faculty of Medicine elected by the members of that Faculty.

2.—Class (2) shall hold office for four years and Classes (4) and (5) for three years. The term shall in the case of the first appointment be reckoned as from the date of the Charter and in case of any subsequent appointment from the date of such appointment or re-appointment as the case may be.

3.—Of Class (2) one-fourth or the number nearest to one-fourth shall retire every year. The Court shall determine the order in which the first members of Class (2) shall retire. Every retiring member of this class shall continue to act until his successor is appointed.

4.—All casual vacancies shall be filled up as soon as conveniently may be by the body which appointed the member whose place has become vacant and the appointee to a casual vacancy shall be a member for the residue of the term for which the person in whose place he is a member was appointed.

5.—Except as expressly above provided appointees need not be members of the body by which they are appointed.

6.—Members retiring by effluxion of time may be re-elected.

7.—Members (others than ex-officio members) may be removed for good cause by the Court.

8.—In case any member of the Council comprised within any of the above classes has not been nominated in the First Schedule to the Charter he shall be appointed in accordance with this Section as soon as possible.

9.—Class (2) aforesaid shall be increased by three members for every member of the Senate also member of the Council who brings up the number of members of the Senate who are members of Council to a number

exceeding the proportion provided by the Charter.' Such additional members shall be elected as soon as possible after the cause of election arises.

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### SECTION 13.

#### THE SENATE.

1.—The Senate shall consist of the Principal Vice-Principal the Deans of all the Faculties and all the Professors of the University for the time being.

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### SECTION 14.

#### ORDINANCES.

1.—The Council shall make Ordinances with regard to such matters as are directed by the Statutes.

2.—Ordinances shall be effective and binding when sanctioned by the Court except that in cases certified to be urgent by a vote to that effect of not less than an absolute majority of the Council Temporary Ordinances may be made and shall be operative from a date prescribed by the Council until the then next meeting of the Court at which the Ordinance can be considered.

3.—Ordinances shall subject to the Charter and Statutes deal with the following matters:—

- (a) The finances investments and accounts of the University.
- (b) The constitution functions and privileges of the Guilds of Graduates and Under-Graduates and other matters connected with the said Guilds requiring to be prescribed.
- (c) The Degrees Diplomas Certificates and distinctions (honorary and substantive) to be awarded by the University the qualifications for the same inclusive of examinations and the means and steps to be taken relative to the granting and obtaining of the same.

- (d) Prescriptions regarding the discipline to be enforced in regard to the Graduates and Under-Graduates.
  - (e) The withdrawal of Degrees Diplomas Certificates and Distinctions.
  - (f) The removal from Membership of the University of Graduates and Under-Graduates.
  - (g) Such subjects as are required by the Statutes to be prescribed by means of Ordinances.
  - (h) The inspection and examination of Schools and other Institutions and the Scholars and Students therein and the grant of Certificates of Proficiency.
  - (i) The provisions and tenure of such Fellowships Scholarships Exhibitions prizes rewards and pecuniary and other aids as are referred to in Section 16 of the Statutes.
  - (k) The payment and amount of fees to be exacted within the University or in relation to the enjoyment of privileges therefrom.
  - (l) The emoluments allowances salaries and superannuation allowances of the Officers of the University its Professors Lecturers Teaching Staff Secretary Registrar and permanent servants.
  - (m) The provision employment tenure of office and terms and manner of appointment and the duties of and teaching by Professors Lecturers and Teaching Staff.
  - (n) The conditions of affiliation of Colleges.
  - (o) The provision maintenance and supervision of Halls or other premises for the residence of students.
  - (p) The duties and powers of Faculties and Advisory Boards.
  - (q) The tenure of office and terms and manner of appointment and the duties of the Examiners Examining Boards Secretary Registrar Librarian and permanent servants.
-

## SECTION 15.

## FACULTIES.

1.—There shall be within the University the Faculties following :—

- (1) Science.
- (2) Arts.
- (3) Medicine.
- (4) Commerce.
- (5) Such others as may be added by Statute.

2.—Ordinances shall prescribe which professors and teachers shall be members of or be attached to the several Faculties. The Principal and Vice-Principal shall be members of all Faculties. Ordinances shall also provide for the subjects which are to be within the cognizance of the respective Faculties.

3.—In the Faculties other than that of Medicine the respective Deans shall be appointed by the Members of the Faculty and shall hold office for three years.

4.—In each Faculty the Dean shall preside over the Meetings of his Faculty.

5.—The Deans other than the Dean of the Faculty of Medicine shall be removable for good cause by the Faculty appointing them respectively with the sanction of the Council.

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SECTION 16.

## TEACHING.

The University shall so far as and to the full extent which its resources from time to time permit provide for :—

- (a) Instruction and teaching in every Faculty.
- (b) Such instruction in all branches of liberal education as may enable students to become proficient in and qualify for degrees diplomas and certificates in science commerce arts literature law medicine surgery and all other branches of knowledge.

- (c) Such instruction especially whether theoretical technical artistic or otherwise as may be of service to persons engaged or about to engage in the manufactures commerce and industrial pursuits of the Midland Districts of England.
  - (d) Facilities for the prosecution of original research in science literature arts medicine surgery law and especially the applications of science.
  - (e) Such fellowships scholarships exhibitions prizes and rewards and pecuniary and other aids as shall facilitate or encourage proficiency in the subjects taught in the University and also original research in every branch.
  - (f) Such extra-collegiate and extra-university instruction and teaching as may be sanctioned by ordinances.
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## SECTION 17.

### UNIVERSITY EXAMINATIONS.

1.—Except in the case of subjects not taught in the University the Examiners of the University shall be the Professors of the University with such Lecturers of the University as the Council from time to time appoint and such External Examiners not being Professors Lecturers or Teachers in the University as may be from time to time appointed by the Council. Provided that at least one such External Examiner shall be appointed by the Council for each subject or group of subjects forming part of the courses of studies required for University degrees.

2.—All matters respecting the subjects time and mode of the Examinations, and respecting the degrees and distinctions to be conferred by the University shall be provided for by Ordinance. Provided always that all Examinations of members of the University shall be conducted jointly by External Examiners and by Examiners being Professors or Lecturers of the University.

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## SECTION 18.

## COMMITTEES.

1.—The Court Council and Senate may respectively appoint such and so many standing and special Committees as may seem to them fit for the purpose of dealing with any subjects or matters delegated to such Committees. The Committees' powers shall be such as the bodies appointing them from time to time direct and may be revoked altered or enlarged as to the appointing bodies shall seem meet. Every Committee shall report to the body appointing it but to the extent to which that body from time to time directs the proceedings and acts of Committees shall not require the approval of the appointing body.

2.—The Council shall make regulations for the proceedings of all Committees but subject thereto every Committee may regulate its own procedure times and places of meeting.

3.—The Vice-Chancellor shall ex-officio be a member of every Committee of the Court and Council and every joint Committee of the Court and Council.

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SECTION 19.

## ADVISORY BOARDS.

The Council may from time to time appoint Advisory Boards consisting either wholly or partly of members unconnected with the University upon such terms and for such purposes as the Council may consider advisable and may refer to them for advice and report any subject or matter in the Council's opinion requiring to be so dealt with. And such advice and report shall be duly considered and weighed by any body in the University to which the Council direct such advice to be given or report to be made.

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## SECTION 20.

## AFFILIATION.

1.—The University shall have power to affiliate Colleges which may have attained a standard which shall be deemed satisfactory by the University to require contributions for University purposes from such Colleges as a condition of affiliation or otherwise and to make ordinances for regulating their relations to the University and in particular for regulating the number of the representatives of such Colleges on the University Court.

2.—The University may recognise attendance upon courses of study in an affiliated College as wholly or in part qualifying students for graduation. Provided that the recognition of lecturers teachers and examiners the regulations respecting the period of attendance upon and the character and subjects of such courses and the period of attendance at such College and the period of collegiate study for which exemption is to be granted shall be approved by the Council and provided also that the Council shall not approve thereof unless the Senate have recommended the same or unless and until the Senate shall have had a reasonable opportunity of considering and reporting thereupon to the Council.

3.—Notwithstanding that a subject is not taught in the University the Court shall have power to recognise a College in which such subject is taught and to recognise such subject as a subject for degrees in the University. Provided that pursuance of a scheme of study in that subject approved by the Council be a condition precedent to examination in that subject.

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SECTION 21.

## MEETINGS OF THE COURT.

1.—A meeting hereinafter distinguished as the “yearly meeting” of the Court shall be held once a year in the month of January or February at such day and hour as shall be appointed by the Council with the approval of the Chancellor and at such yearly meeting a Report of

the Proceedings of the Council and of the University together with a Statement of the Receipts and Expenditure and the Balance Sheet as audited shall be presented by the Council to such meeting.

2.—For the purposes of transacting the business in the preceding clause mentioned a quorum of the Court shall be twenty members.

3.—All other business at the yearly meeting shall be deemed special business and for the purpose of any such special business and also for the purposes of all special general meetings the quorum shall be eighty members.

4.—In the absence of a quorum no business but the adjournment of the Court can be transacted.

5.—Special general meetings may be convened by the Council at any time.

6.—Twenty-one days' notice of the yearly meeting shall be sent by the Secretary to every member of the Court.

7.—Members intending to bring forward any special business at the yearly meeting shall give notice of such business to the Secretary at least fourteen days before the day appointed for such meeting and at least seven days notice of all special business to be brought forward at the yearly meeting shall be sent to every member of the Court.

8.—Twenty-one days' notice of any special general meeting stating generally the nature of the business to be transacted shall be sent to each member of the Court and no meeting shall be competent to transact any other business than that mentioned in the notice or directly arising thereout. Provided always that this clause shall not interfere with the operation of clause 7 of this section.

9.—The procedure at meetings of the Court shall be in accordance with the regulations made for governing the same as provided by the Charter.

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## SECTION 22.

## POWERS OF THE COURT.

1.—The Court shall exercise all the powers and authority of the University except to the extent to which the exercise of the same may by the Charter Statutes and Ordinances be otherwise provided for.

2.—To make Statutes either at its own initiative or on the proposal of the Council.

3.—All Statutes must be passed at one meeting of the Court and confirmed at the next and special notice of the fact that Statutes will be considered and containing a short statement of the nature of the proposed Statutes must have been given with respect to each of the two meetings aforesaid.

4.—A Special Resolution of the Court means a resolution passed at one meeting of the Court and confirmed at a subsequent meeting held not less than one calendar month nor more than three calendar months after the former provided the resolution be passed at each meeting by a majority of not less than two-thirds of those present and voting.

5.—The Court shall exercise control over the Senate through the Council and not otherwise and over the Council by means of Statutes and of Resolutions passed in plenary sittings of the Court and not otherwise.

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SECTION 23.

## ACTS DURING VACANCIES.

1.—No act or resolution of the Court the Council or the Senate shall be invalid by reason only of any vacancy in the body doing or passing it or by reason of any want of qualification by or invalidity in the election or appointment of any de facto member of the body (whether present or absent).

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## SECTION 24.

## POWERS OF THE COUNCIL.

1.—Subject to the Charter and the Statutes and any Ordinances and Regulations made in pursuance thereof the Council shall have the following Powers :—

1. To draft statutes as and when they see fit and submit the same to the Court for consideration and enactment.
2. To make ordinances for any matters in respect of which ordinances are authorised to be made.
3. To make regulations for any purposes for which regulations are authorised to be made.
4. To exercise all such powers as are conferred on the Council by the Charter Statutes Ordinances and Regulations and carry the Charter Statutes Ordinances and Regulations into effect.
5. To review and control or disallow any act of the Senate and give directions to be obeyed by the Senate.
6. To govern manage and regulate the finances accounts investments property business and all affairs whatsoever of the University.
7. To make contracts on behalf of the University.
8. To sell buy exchange lease or take leases of the University's real and leasehold estates.
9. To provide the buildings premises furniture and apparatus and other means needed for carrying on the business of the University.
- 10.—To supervise the Instruction and Teaching of the University.
- 11.—To entertain adjudicate upon and if thought fit redress the grievances of members of the Senate on appeal against the acts of the Senate and of the Officers of the University the Professors the Teaching Staff the Graduates Under-Graduates and the University Servants who may for any reason feel aggrieved otherwise than by an Act of the Court.

12. To select a seal and arms for the University and have the sole custody and use of the seal.
13. To borrow money on behalf of the University and for that purpose (if the Council think fit) to mortgage all or any part of the property of the University whether real or personal or give such other security whether upon such real or personal property or otherwise as the Council think fit.

2.—The Council shall obey and carry out the Statutes and the Resolutions of the Court.

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## SECTION 25.

### POWERS OF THE SENATE.

1.—The Senate shall subject to review by the Council have the government management and carrying out of the curriculum instruction and education afforded by the University the examinations held by the University recommendations for degrees diplomas certificates fellowships and scholarships and the discipline (whether intra-mural or extra-mural) of the students or undergraduates of the University and the carrying out of such discipline.

2.—Such matters as shall be committed to the Senate by the Council shall be transacted by the Senate.

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## SECTION 26.

Contracts made by or on behalf of the University shall be validly made and binding on the University if made as follows—

- (1) Any contract which if made between private persons would be by law required to be in writing and if made according to English law to be under seal may be made on behalf of the University in writing under its common seal and such contract may be in the same manner varied or discharged.
- (2) Any contract which if made between private persons would be by law required to be in writing and signed by the parties to be charged therewith

may be made on behalf of the University in writing signed by any person acting under the express or implied authority of the Council and such contract may in the same manner be varied or discharged.

- (3) Any contract which if made between private persons would by law be valid although made verbally only and not reduced into writing may be made either in writing or verbally on behalf of the University by any person acting under the express or implied authority of the Council and such contract may be in the same way varied or discharged.

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#### SECTION 27.

1.—These Statutes shall be interpreted in such manner as not to conflict with the Charter.

2.—Words defined in the Charter or Statutes shall have the same meaning in the Ordinances and Regulations unless the context be repugnant thereto.

**In Witness** whereof We have caused these Our Letters to be made patent. **Witness** Ourselves at Westminster the twenty-fourth day of March, in the sixty-third year of Our reign.

**By Warrant** under the Queen's Sign Manual.

MUIR MACKENZIE.



## Birmingham University Act 1900.

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### ARRANGEMENT OF SECTIONS.

|                                                                                                           | SECTION |
|-----------------------------------------------------------------------------------------------------------|---------|
| Preamble.                                                                                                 |         |
| Short title ... ..                                                                                        | 1       |
| Commencement of Act ... ..                                                                                | 2       |
| Dissolution of Mason University College and<br>repeal of Act of 1897 ... ..                               | 3       |
| Transfer of property to University of Birmingham                                                          | 4       |
| Appeal to Visitor with respect to management<br>of property &c. ... ..                                    | 5       |
| Transfer of liabilities to University of Birmingham                                                       | 6       |
| Saving for agreements deeds actions &c. ...                                                               | 7       |
| Transfer of powers to nominate members of<br>certain governing bodies ... ..                              | 8       |
| Power of University of Birmingham to hold<br>examinations under 49 & 50 Vict. c. 48 ...                   | 9       |
| Power of University to choose representative on<br>General Medical Council ... ..                         | 10      |
| Exemption of University from rates ..                                                                     | 11      |
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## AN ACT

To Transfer all the property and liabilities of Mason University College in the City of Birmingham to the University of Birmingham, and to repeal the Mason University College Act 1897 ; to confer certain powers on the said University ; and for other purposes.

[*Royal Assent, 25th May, 1900.*]

Preamble.

WHEREAS the late Sir Josiah Mason founded out of his own resources in Birmingham an institution for the promotion of thorough systematic education and instruction specially adapted to the practical mechanical and artistic requirements of the manufactures and industrial pursuits of the Midland District of England which subsequently became known as the Mason Scientific College :

And whereas the said Institution was by the Mason University College Act 1897 incorporated under the name of Mason University College with a new constitution and powers and all the lands and other property vested in the Trustees of the said Institution were by the said Act vested in the said College :

And whereas the said Act expressly contemplated that the said College might become a member of a University to be established having power to grant degrees in arts sciences medicine and surgery :

And whereas upon the petition of the said College and of the Corporation of the City of Birmingham and of the School Board for the said City and of the



Governors of the Grammar School of King Edward the Sixth in the said City and others Her Majesty has been pleased to grant a Charter establishing in the said City of Birmingham a University by the name and style of the University of Birmingham with faculties of Science Arts Medicine and Commerce and such other faculties as the Statutes of the University may from time to time prescribe :

And whereas the said Charter directs that the University shall be both a Teaching and an Examining University and shall further the prosecution of original research in all its branches :

And whereas the Governors of the said College are desirous and it is expedient that the College be merged in the University and that all its property and liabilities be transferred to and vested in the University and that the Mason University College Act 1897 be repealed :

And whereas the Council of the City of Birmingham and the Overseers of the Poor of the Parish of Birmingham are desirous and it is expedient that the exemption from local rates granted to the said College be continued to the said University :

And whereas it is expedient to empower the said University to hold examinations under section three of the Medical Act 1886 and to elect a representative on the General Council mentioned in section seven of the same Act :

And whereas it is provided by a Scheme made by the Court of Chancery which is scheduled to and

confirmed by the Queen's College Birmingham Act 1867 that the physicians and surgeons of the Queen's Hospital at Birmingham shall hold their respective offices on condition of giving to all students of the Queen's College at Birmingham such clinical instruction in kind and quantity and in such manner as shall from time to time be required by the medical examining boards therein referred to and that the students of the said College shall at all times have free access to the said Hospital for the purposes of clinical instruction upon payment of such fees and on such other terms and conditions as shall be from time to time agreed and that any dispute between the said College and the said Hospital regarding such fees terms or conditions or otherwise regarding the privileges to be enjoyed by the students of the said College or any such dispute as therein mentioned between the said Hospital and any physician or surgeon thereof shall be referred to the visitor of the said College whose decision shall be binding on the parties to the dispute :

And whereas in pursuance of an Order of the Chancery Division of the High Court made by the Hon Mr. Justice Chitty at Chambers on the twenty-second day of June one thousand eight hundred and ninety-two the medical and dental departments of the said Queen's College were closed and abandoned and the anatomical and other collections books and other things specified in the said Order and formerly belonging to the said Queen's College were handed

over to and became the absolute property of the trustees of the Mason College:

And whereas the medical students of the Mason College have accordingly since the latter part of the year one thousand eight hundred and ninety-two received clinical instruction from the physicians and surgeons of the said Queen's Hospital:

And whereas it is now desirable to continue to the students in the Faculty of Medicine of the University the same rights and privileges as have been enjoyed first by the medical students of Queen's College and latterly by the medical students of Mason College under the provisions of the above-recited Scheme and Order:

And whereas it is expedient that the other provisions contained in this Act be made:

And whereas the objects of this Act cannot be attained without the authority of Parliament:

MAY IT THEREFORE PLEASE YOUR MAJESTY

That it may be Enacted and BE IT ENACTED by the Queen's Most Excellent Majesty by and with the advice and consent of the Lords Spiritual and Temporal and Commons in this present Parliament assembled and by the authority of the same as follows (that is to say):—

1.—This Act may be cited as the Birmingham Short title.  
University Act 1900.

2.—This Act shall come into operation on the first Commencement  
of Act.  
day of October one thousand nine hundred which date is hereinafter referred to as the commencement of this Act.

Dissolution of  
Mason  
University  
College and  
repeal of Act  
of 1807.

3.—On the commencement of this Act Mason University College shall be dissolved and the Mason University College Act 1897 shall be repealed without prejudice to anything lawfully done or suffered thereunder and in particular without prejudice to the provisions of Part III. of the said Act for confirming or rendering valid certain leases sales exchanges estates interests rights payments and contracts therein referred to.

Transfer of  
property to  
University of  
Birmingham.

4.—On the commencement of this Act all property real and personal of every description (including things in action) which immediately before the passing thereof belonged to or was vested in Mason University College shall be by virtue of this Act without any conveyance or other instrument transferred to and vested in the University of Birmingham for all the estate and interest therein of Mason University College and shall be applied to the objects and purposes for which the University is incorporated.

Appeal to  
visitor with  
respect to  
management of  
property &c.

5.—(1) Any three Governors present at a meeting of the Council of the University and voting against any resolution passed or order made at such meeting with respect to any lease sale exchange mortgage disposition or contract of or relating to any property of the University or with respect to the borrowing of money may appeal against such resolution to the visitor subject to the following conditions:—

- (a) The appeal must be made in writing signed by the appellants within seven days after the date of the meeting:

- (b) Notice of the appeal stating the grounds thereof in writing signed by one or more of the appellants must be given to the Secretary of the University within the said period of seven days.

(2) The visitor shall if desired hear the appellants and the Council and the decision of the visitor allowing disallowing or modifying the resolution or as the case may be shall be binding and final.

6.—On the commencement of this Act all debts and liabilities of Mason University College shall be by virtue of this Act transferred and attach to and be discharged and satisfied by the University of Birmingham.

Transfer of liabilities to University of Birmingham.

7.—All agreements awards contracts deeds and other instruments and all actions and proceedings and causes of action or proceedings which immediately before the commencement of this Act were existing or pending in favour of or against Mason University College shall continue and may be carried into effect enforced and prosecuted by or in favour of or against the University of Birmingham to the same extent and in like manner as if the University instead of the College had been party to or interested in the same respectively.

Saving for agreements deeds actions &c.

8.—The power or right of Mason University College to appoint or nominate a member of the Governing Body of any educational or charitable institution shall on the commencement of this Act be transferred to

Transfer of powers to nominate members of certain governing bodies.

and may be exercised by the Council of the University of Birmingham.

Power of  
University of  
Birmingham to  
hold  
examinations  
under 49 & 50  
Vict. c. 48.

9.—The University of Birmingham is hereby empowered to hold qualifying examinations in medicine surgery and midwifery for the purpose of registration under the Medical Acts as if the University had been a university in the United Kingdom legally qualified at the passing of the Medical Act 1886 to grant diplomas in medicine and surgery; and the provisions of Part I of that Act shall be read and have effect accordingly.

Power of  
University  
to choose  
representative  
on General  
Medical  
Council.

10.—The Council of the University of Birmingham shall be entitled to choose one representative to be a member of the General Council constituted by the Medical Acts; and section seven of the Medical Act 1886 shall be read and have effect as if the University of Birmingham had been expressly included therein.

Exemption of  
University  
from rates.

11.—The University of Birmingham shall not be assessed or rated to pay or contribute to any borough improvement or parochial rates in respect of any buildings lands or property of any description occupied by the University which were exempt from rating under the Mason University College Act 1897: Provided always that the exemption herein contained shall not extend to any part of such buildings land and property which shall for the time being be occupied by any member officer or servant of the

University and the parts of buildings so occupied shall be rated as separate tenements.

12.—All professors and other members of the teaching staff of Mason University College and all officers and servants of the College shall hold as nearly as practicable the same offices and places in the University of Birmingham as they held in the said College immediately before the commencement of this Act and upon the same terms and conditions unless and until the Council of the University otherwise decide.

Saving for existing officers of Mason University College.

13.—Clauses fifty and fifty-one of the Scheme set forth in the Schedule to the Queen's College Birmingham Act 1867 shall be read and have effect as if the University were mentioned therein instead of the College so that students in the faculty of medicine of the University shall have at all times provided for them by the physicians and surgeons of the Queen's Hospital at Birmingham such clinical instruction as therein mentioned and shall have free access to the said Hospital for the purposes of clinical instruction as therein mentioned. Provided that any such dispute between the University and the said Hospital or between the said Hospital and any physician or surgeon thereof as therein mentioned shall be referred to the visitor of the University whose decision shall be binding on the parties to the dispute.

Application of certain provisions of Scheme scheduled to Queen's College Birmingham Act 1867.

14.—The Charitable Trusts Acts 1853 to 1894 shall not extend to the University of Birmingham or any

As to jurisdiction of Charity Commissioners.

College or Hall therein and the said University and any such College or Hall shall be exempt from the control or jurisdiction of the Charity Commissioners.

Costs of Act.

15.—The costs charges and expenses of and incidental to preparing obtaining and passing this Act shall be defrayed by the University of Birmingham out of the income of the property by this Act transferred to the University or if the Council of the University think fit out of money representing capital or to be raised by sale or mortgage of some part of the said property.

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### NOTE ON CLAUSE 13.

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By an Act entitled "An Act for the Regulation of the Queen's College at Birmingham and for incorporating the Queen's Hospital at Birmingham" but having the short title of "The Queen's College Birmingham Act 1867" which received the Royal Assent on the 12th day of August 1867 the Queen's Hospital was separated from the Queen's College and separately incorporated by the title of "The Queen's Hospital Birmingham" but for the purpose of preserving the right the Queen's College had of clinical instruction for its students in the Hospital the following clauses Numbered 50 and 51 in the Scheme sanctioned by the Act were inserted in the Schedule to the Act:—

The Hospital shall be maintained as a Clinical Hospital and afford every facility for clinical instruction; and such persons shall from time to time be appointed to be Physicians and Surgeons of the Hospital whose certificates as to clinical instruction



shall be accepted by the Medical Examining Boards of the United Kingdom; and such Physicians and Surgeons shall hold their respective offices on condition of giving to all students of the *College* such clinical instruction in kind and quantity and in such manner as shall from time to time be required by the said Medical Examining Boards.

The students of the *College* shall at all times have free access to the Hospital for the purposes of clinical instruction, upon payment of such fees and on such other terms and conditions as shall be from time to time agreed upon between the Council and the Hospital. Any dispute between the *College* and the Hospital regarding such fees terms or conditions or otherwise regarding the privileges to be enjoyed by the students of the *College* under this clause or the preceding clause or any dispute between the Hospital and any Physician or Surgeon thereof as to the preceding clause shall be referred to the Visitor of the *College*, whose decision shall be binding on the parties to the dispute.

The effect of clause 13 is to substitute *University* for *Queen's College*.

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## ORDINANCES OF THE UNIVERSITY.

MADE BY THE COUNCIL in accordance with the provisions of Section 14 of the Second Schedule to the Charter.

### FINANCES, INVESTMENTS, AND ACCOUNTS.

1.—The Finances, Investments and Accounts of the University shall be controlled by the Council, who shall report thereon from time to time to the Court as may be required by the regulations of the Court.

### FEEs.

2.—The payment and amount of fees to be exacted within the University or in relation to the enjoyment of privileges therefrom shall be determined by the Council.

### FELLOWSHIPS, SCHOLARSHIPS, EXHIBITIONS AND PRIZES.

3.—The provisions and tenure of Fellowships, Scholarships, Exhibitions, Prizes, Rewards and pecuniary and other aids, shall be determined by the Council on the recommendation of the Senate.

### FACULTIES.

4.—The Members of the FACULTY OF SCIENCE shall be the Principal and Vice-Principal, and the Professors of Mathematics, Physics, Chemistry and Metallurgy, Zoology, Botany, Geology, Engineering, Brewing, and Education.

To this Faculty shall be attached the Professors of Anatomy, Physiology, Pathology and Bacteriology, Hygiene and Public Health, and Mental and Moral Philosophy.

5.—The Members of the FACULTY OF ARTS shall be the Principal and Vice-Principal, and the Professors of

Latin and Greek, English, French, German, Mental and Moral Philosophy, and Education.

To this Faculty shall be attached the Professor of Mathematics.

6.—The Members of the FACULTY OF MEDICINE shall be the Principal and Vice-Principal, and the Professors of Anatomy, Physiology, Medicine, Surgery, Pathology and Bacteriology, Hygiene and Public Health, Therapeutics, Midwifery, Gynæcology, Forensic Medicine, Mental Diseases, Operative Surgery, Ophthalmology, and the Lecturer on Materia Medica.

To this Faculty shall be attached the Professors of Physics, Chemistry, and Zoology.

7.—The Members of the FACULTY OF COMMERCE shall be the Principal and Vice-Principal, the Professor of Commerce and Public Finance, and the Professors of Accounting and Commercial Law.

To this Faculty shall be attached the Professors of English, French, German, Mathematics, Philosophy, and History, and such other Professors as may for the time being be taking part in the courses of study prescribed for degrees in Commerce.

8.—Professors or Lecturers attached to any Faculty without being Members shall receive notice of and shall be entitled to attend all meetings of such Faculty, but shall be entitled to vote only upon questions relating to the subjects of their respective Chairs or Lectureships.

#### DUTIES AND POWERS OF FACULTIES.

9.—Each Faculty shall have the right of taking into consideration all matters bearing upon its work and development.

10.—Subject to approval by the Senate and Council each Faculty shall be responsible for the transaction of all academic business specially pertaining to it.

11.—It shall be the duty of each Faculty, subject to review by the Senate and Council, to draft regulations as to degrees, diplomas, certificates, scholarships and prizes falling within the province of the Faculty, and to draft the courses of study and the time-tables and schemes of examinations of the Faculty.

12.—It shall be the privilege and duty of each Faculty to report, according to the method provided by the Regulations for the time being, upon the candidates for, or persons to be proposed for, appointment to all teaching posts and examinerships belonging to the Faculty, before the appointments are made by the Council.

#### APPOINTMENT AND TENURE OF OFFICE OF PROFESSORS, LECTURERS, TEACHING STAFF AND OFFICERS.

13.—The manner of appointment and the duties of the Professors, Lecturers, Teaching Staff, External Examiners and Librarian, shall in each case be determined by the Council after report thereon by the Senate.

14.—The duties of the Registrar shall be determined by the Council, after report thereon by the Senate.

15.—The emoluments, allowances and salaries of the officers of the University, its Professors, Lecturers, Teaching Staff, Secretary, Registrar, and servants shall be determined by the Council.

16.—Professors and Independent Lecturers shall hold office during good behaviour, but may be removed by the Council for good cause as defined by the Statutes of the University : provided also that it shall be competent for the Senate, either on its own initiative or upon request by the Council, to take into consideration the case of any Professor or Independent Lecturer, and for a majority of the members of the Senate present and voting at a duly convened meeting of the Senate (such voting to be by ballot), to represent to the Council that in the general interest of the University or for some special reason it is desirable that the engagement of any Professor or Independent Lecturer should be determined,

and upon receipt of such representation the Council may terminate the engagement of such Professor or Lecturer by six months' notice in writing.

17.—The engagements of members of the Teaching Staff (other than Professors and Independent Lecturers) and of the Secretary, Registrar, officers and servants of the University may, subject to any special provision in the terms of their engagements, respectively, be determined by three months' notice in writing on either side.

#### PROFESSORS AND LECTURERS.

18.—Each Professor and Lecturer shall, on his appointment, enter into an agreement with the University, which shall indicate :—

- (i.) The subject or subjects committed to the office undertaken :
- (ii.) The arrangement as to stipend :
- (iii.) Any special terms of the appointment.

19.—A Professor or Lecturer shall not resign his appointment except by three months' notice in writing, which notice shall end at the expiration of some one of the University terms as regulated by the Calendar of the University for the time being ; a Professor or Lecturer may, however, resign his appointment on the 30th of September in any year by giving notice in writing at any time in the preceding months of July or August, and the Council shall at all times have the power to waive notice to such extent as it may think fit.

20.—Every Professor and independent Lecturer, while confining himself within the limits of the subject committed to his charge, shall have complete freedom of teaching, so far as the matter and methods of his instruction are concerned, subject only to the approval of his Faculty and of the Senate and Council in regard to the amount and times of his teaching and the scope and standard of such of his courses as form integral parts of Degree courses in the University.

## EMERITUS PROFESSORS.

21.—The Court shall have power on the recommendation of the Council to confer the title of Emeritus Professor upon any Professor of the University on or after his retirement, in recognition of conspicuous services to the University. The title "Emeritus Professor" shall in no case be conferred unless the connexion with the University shall have extended over a period of not less than ten academic years, and then only so long as the Professor in question does not hold another office of a similar character. An Emeritus Professor shall for all purposes of courtesy and on ceremonial occasions, be upon the same footing as members of the Senate, but shall not be entitled to perform any administrative or executive functions as a member of the Senate or otherwise. A previous and continuous term of service in Mason University College or in Mason College, Birmingham, or in the Faculty of Medicine of Queen's College, Birmingham, shall be deemed to be service in the University for the purposes of this Ordinance.

## SPECIAL LECTURERS OR READERS.

22.—The Council shall have power on the recommendation of a Faculty and of the Senate to appoint as special University teachers persons whether on the regular teaching staff or not, and to recognise the courses delivered by them as qualifying courses for University Examinations and Degrees. Such persons shall be selected on the ground of scholarship or special knowledge and ability, and shall be appointed on such terms of tenure and status as the Council may decide.

## DISCIPLINE.

23.—Every student shall be subject to such regulations as shall from time to time be passed by the Senate and approved by the Council.

24.—There shall be a Committee of Discipline, consisting of the Principal, the Vice-Principal, the Deans of the Faculties, and the Secretary of the University; which Committee shall report to the Senate.

25.—Every Professor, Reader, Lecturer, Assistant Lecturer, or Demonstrator shall have the power, and it shall be his duty, to check any disorderly conduct that may occur in a class room or laboratory, and if he deem it necessary may require any student to withdraw from the room for the day. In the event of such an occurrence in a room under the charge of an Assistant Lecturer or Demonstrator, he shall report the matter without delay to his Professor or immediate chief.

26.—Professors, Lecturers, and other officers shall have the power to check disorderly or improper conduct, or any breach of Regulations arising in any part of the precincts of the University.

27.—Any member of the Discipline Committee shall have power to exclude any student from the University or its precincts until the next meeting of the Discipline Committee which shall be held as soon as possible after each such exclusion, and the circumstances of the case shall be laid before the meeting for further adjudication.

28.—The Discipline Committee shall have power to suspend any student from attendance at the University for any period not extending beyond the next meeting of the Senate. Every such suspension shall be reported to the Senate at its next meeting, and the Senate shall have power to extend the period of suspension for the remainder of a University term, and subject to the approval of the Council, to expel.

29.—Habitual neglect of work in any class, shall be regarded as a breach of discipline, and may subject the student to suspension.

#### MATRICULATION.

30.—Matriculation is the formal admission of a student to membership of the University.

31.—An Examination called the Matriculation Examination shall be held by the University at least once in each year at such time and in such subjects and under such conditions as may be prescribed by Regulations.

32.—Any person who shall have paid to the University the prescribed fee, and shall have satisfied such other conditions as may be prescribed by Regulations, shall be entitled to be admitted to the Matriculation Examination.

33.—The University may by Regulations recognise the Matriculation or any other examination or examinations of any British or foreign University or of any public Educational Authority in his Majesty's dominions as exempting from the Matriculation Examination of the University or from any part thereof.

34.—Any person who shall have passed the Matriculation Examination, or a Schools' Leaving Examination of the University, or other examination or examinations recognised by the University as exempting from the Matriculation Examination, and shall have paid to the University the fee prescribed by these Ordinances, and shall have satisfied such other conditions as may be prescribed by Regulations, shall be entitled to be matriculated.

#### UNDERGRADUATES AND OTHER STUDENTS.

35.—Every person who has been matriculated shall be entitled to the privileges of membership of the University and of the Guild of Undergraduates, so long as he is in actual attendance on a course of study in the University approved by a Faculty of the University, but no longer.

36.—The University may admit all persons who shall have satisfied such conditions as may be prescribed by regulations to any of the courses of study offered by the University, although they have not passed the Matriculation Examination or any examination exempting from the Matriculation Examination; but such students shall not be entitled to be matriculated or to be members of the Guild of Undergraduates, nor shall they be entitled to wear the academic dress prescribed for Undergraduates.



# DEGREES IN THE FACULTIES OF SCIENCE, ARTS, AND COMMERCE.

37.—In the Faculty of Science there shall be the following degrees, viz. :—

|                      |                              |       |
|----------------------|------------------------------|-------|
| Bachelor of Science, | to be denoted by the letters | B.Sc. |
| Master of Science,   | „ „                          | M.Sc. |
| Doctor of Science,   | „ „                          | D.Sc. |

In the Faculty of Arts there shall be the following degrees, viz. :—

|                      |                              |         |
|----------------------|------------------------------|---------|
| Bachelor of Arts,    | to be denoted by the letters | B.A.    |
| Master of Arts       | „ „                          | M.A.    |
| Doctor of Letters    | „ „                          | D.Litt. |
| Doctor of Philosophy | „ „                          | D.Phil. |

In the Faculty of Commerce there shall be the following degrees, viz. :—

|                       |                              |        |
|-----------------------|------------------------------|--------|
| Bachelor of Commerce, | to be denoted by the letters | B.Com. |
| Master of Commerce,   | to be denoted by the letters | M.Com. |

38.—The courses of study and the number and nature of the examinations qualifying for admission to these degrees respectively shall be prescribed by regulations.

39.—Attendance upon courses of study in the University shall not in general be accepted as any part of the qualification necessary for a degree unless the candidate for the degree shall have previously been matriculated ; but in exceptional cases the Senate may recognise as part of such qualification attendance on courses of study taken previous to matriculation,

provided always that no examination passed previous to matriculation be recognised as a qualifying University Examination.

40.—Except as hereinafter provided, no candidate shall be admitted to the degree of Bachelor until he shall have attended in the University the prescribed courses of study extending over a period of at least three years.

41.—No Bachelor of the University shall be admitted to the degree of Master until at least one year after the time of his admission to the degree of Bachelor.

42.—No Bachelor or Master of the University shall be admitted to the degree of Doctor until at least two years after the time of his admission to the degree of Bachelor.

43.—The Senate shall have the power of admitting graduates or persons who have passed Degree Examinations of other Universities to the courses and examinations for the higher degrees of Master and Doctor under conditions prescribed by Regulations without requiring such persons to attend the courses of study or pass the examinations qualifying for the degree of Bachelor. Such students after being matriculated shall be called Graduate Students, and shall be members of the Guild of Undergraduates.

44.—The Senate shall have the power of recognising attendance at another University or University College as part of the attendance qualifying for the Degree of Bachelor, and of recognising examinations passed at such other University as exempting from the first year's examination for such degree; provided that no candidate from another University be admitted to the Degree of Bachelor until he shall have attended in the University the prescribed courses of study extending over a period of at least two years.

## PAST STUDENTS OF MASON UNIVERSITY COLLEGE.

45.—Students who have passed the Intermediate Examination in Science or Arts of the University of London after at least one session of regular study at Mason University College shall be excused the First Year's Course and the Intermediate Examination, and shall enter on the Degree Course as second year students of the University.

46.—Persons who, on October 1st, 1900, were regular students of Mason University College having passed the Intermediate Examination in Science or Arts of the University of London, and having subsequently spent at least one session at the College in regular study for the Final Examination, may be excused the first two years and the Intermediate Examination and may enter as third year students of the University if, in the opinion of their Faculty, they have fulfilled in the College conditions sufficiently nearly corresponding to those laid down for second year students.

47.—Persons who, on October 1st, 1900, were regular students of Mason University College having passed the Intermediate Examination in Science or Arts of the University of London, and having subsequently spent at least two sessions at the College in regular study for the Final Examination may be excused the Intermediate Examination and further attendance at lectures, may enter the University and take rank as if they had completed three years at the University, and may present themselves at a Final Examination for a Degree if, in the opinion of their Faculty, they have fulfilled in the College conditions sufficiently nearly corresponding to those laid down for second and third year students of the University.

48.—Past Students of Mason University College who have passed the Bachelors' Examination in the University

of London, after a course of at least one year's regular study at Mason University College in two subjects at least, shall be permitted to enter the University and present themselves at the Examination for the Masters' Degree after at least one further year of study at the University, as if they had taken the Bachelor's Degree of the University of Birmingham.

#### DEGREES IN THE FACULTY OF MEDICINE.

49.—In the Faculty of Medicine there shall be the following degrees, viz. :—

|                                       |                              |                  |
|---------------------------------------|------------------------------|------------------|
| Bachelor of Medicine,                 | to be denoted by the letters | M.B.             |
| Doctor of Medicine,                   | "                            | M.D.             |
| Bachelor of Surgery,                  | "                            | Ch.B.            |
| Master of Surgery,                    | "                            | Ch.M.            |
| Bachelor of Science in Public Health, | "                            | B.Sc.            |
|                                       |                              | (Public Health.) |
| Master of Science in Public Health,   | "                            | M.Sc.            |
|                                       |                              | (Public Health.) |
| Bachelor of Dental Surgery            | "                            | B.D.S.           |
| Master of Dental Surgery              | "                            | M.D.S.           |

50.—The courses of study and the number and nature of the examinations qualifying for admission to these degrees, respectively, shall be prescribed by Regulations.

51.—No attendance upon courses of study in the University shall be accepted as any part of the qualification for a degree, unless the candidate for the degree shall have previously passed the Matriculation Examination of the University as prescribed for Medical students or an examination recognised by the University as exempting from the same.

52.—Except as hereinafter provided, no candidate shall be admitted to either or both of the degrees of Bachelor of Medicine and Bachelor of Surgery unless he shall have attended the courses of study prescribed by Regulations extending over a period of at least five years after matriculation, of which the first four years must be spent in the University, and the fifth year either in the

University of Birmingham or some other school or schools of medicine recognised for this purpose by the University.

53.—No candidate shall be admitted to the higher degrees of Master of Surgery or Doctor of Medicine unless he has attained both the degrees of Bachelor of Medicine and Bachelor of Surgery in the University, and until a further year shall have elapsed after such Bachelor's degrees were conferred.

54.—No candidate shall be admitted to the degree of Bachelor of Science in Public Health unless he has previously attained to both the degrees of Bachelor of Medicine and Bachelor of Surgery in the University.

55.—No candidate shall be admitted to the degree of Bachelor of Dental Surgery who has not obtained a License in Dental Surgery from some body legally entitled to confer such qualification, and until a period of twelve months shall have elapsed after he obtained such License.

56.—No candidate shall be admitted to the degree of Master of Dental Surgery unless he shall have previously attained to the degree of Bachelor of Dental Surgery, and until a further period of twelve months shall have elapsed after he obtained such Bachelor's degree.

57.—Notwithstanding the preceding ordinance, the Senate shall have the power of admitting graduates or persons who have passed Degree Examinations of other Universities to the courses and examinations for the higher degrees of Master and Doctor under conditions prescribed by Regulations without requiring such persons to attend the courses of study or pass the examinations qualifying for the degree of Bachelor. Such students shall be called Graduate Students, and shall be members of the Guild of Undergraduates.

58.—The Senate shall have power of recognising attendance at another University as part of the attendance qualifying for the degrees of Bachelor of Medicine

and Bachelor of Surgery, and of recognising examinations passed at such other University as exempting from the examination in Chemistry, Physics, and Comparative Anatomy, for such degrees, provided that no candidate from another University be admitted to the degree of Bachelor until he shall have attended in the University the prescribed courses of study extending over a period of at least three years.

PAST STUDENTS OF THE BIRMINGHAM SCHOOLS OF  
MEDICINE AND DENTISTRY.

59.—Persons who, on October 1st, 1900, were students of the School of Medicine and who originally entered as first year students of the school, and have since regularly pursued their studies in the school, shall be permitted to present themselves for the examinations of the University without passing its matriculation examination, and without repeating any courses of lectures which they may already have taken out.

60.—Students of the School of Medicine falling under the above category who have passed any medical examinations in any British or Irish University shall be allowed to count such examination or examinations in lieu of the corresponding examination or examinations in the University of Birmingham, but no such allowance shall be made in the case of students who have passed examinations conducted by licensing bodies other than Universities. Provided that in all cases it shall be essential that the student shall pass the Final Examination of the University of Birmingham.

61.—Past students of the Birmingham Medical School who have taken out their whole course in Birmingham, and are duly qualified Medical Men, shall be permitted at any period during the seven years commencing on the 1st of October, 1900, to present themselves for a Final Examination for the Degrees of Bachelor of Medicine and Surgery.

62.—Past students of the Birmingham Dental School (including those who qualified not later than the November, 1900, Examination of the Royal College of Surgeons of England) who have taken out their whole course in the Birmingham School, and are duly qualified and Registered Dental Surgeons, shall be permitted at any period during the seven years commencing on the 1st of October, 1900, to present themselves for a Final Examination for the Degree of Bachelor of Dental Surgery.

63.—That Students who enter the Department of Dentistry in Mason University College in the years 1897 to 1899 inclusive, and have obtained both the License in Dental Surgery and the qualifications in Medicine and Surgery from some body legally qualified to confer such qualifications, and produce evidence that after having obtained the License in Dental Surgery they have received instruction in the Dental Department of a General Hospital for a period of not less than six months, be admitted to the Degree of Bachelor in Dental Surgery on passing the final examination for such Degree held by the University.

#### EXTERNAL EXAMINERS.

64.—The appointments of External Examiners shall be made in the first instance for one year, but may be renewed annually for the two following years.

#### EXAMINATIONS AND BOARDS OF EXAMINERS.

65.—The Matriculation Examination of the University shall be conducted by Professors or Lecturers of the University appointed for this purpose by the Senate, without the assistance of External Examiners.

66.—Class Examinations and Examinations provided for students who are neither undergraduates nor candidates for any Degree of the University shall be conducted by the Professors or Lecturers of the University without the assistance of External Examiners.

67.—There shall be a Board of Examiners for the Matriculation Examination, consisting of the Principal and Vice-Principal, the Examiners who are taking part in the Examination, and the Professor of Education, the Principal being Chairman of the Board.

68.—For every University Examination prescribed by the Regulations for Degrees of the University there shall be a Board or Boards of Examiners, consisting of the internal and external Examiners who are taking part in the conduct of the Examination, together with the Dean of the Faculty to which the Examination belongs. The Dean of the Faculty shall be the Chairman of all such Boards of Examiners as belong to that Faculty.

69.—The Principal and Vice-Principal shall be members of all the Boards of Examiners.

#### SCHEDULES OF QUALIFICATION.

70.—Before admission to any University Examination each candidate is required to present to the Registrar a Schedule of Qualification certifying that he has attended the lectures, classes, laboratory or hospital instruction prescribed by the Regulations for that examination to the satisfaction of the Professors or other teachers concerned, and that he has passed such class examinations and performed such other exercises as his teachers may prescribe in connexion with their own courses, to the satisfaction of the Faculty.

#### DEGREES, DIPLOMAS, SCHOLARSHIPS, AND OTHER UNIVERSITY HONOURS.

71.—The ordinary Degrees, Diplomas, Certificates, Scholarships, Prizes and Honours of the University (except Honorary Degrees) shall be awarded by the Council on the nomination of the Senate.

72.—Honorary Degrees may be conferred upon persons approved by the Council on the nomination of the Senate.



73.—Degrees whether ordinary or honorary shall be conferred at a special congregation of all members of the University to be held for the purpose at least once a year, and such persons other than members of the University as the Council may direct shall be invited to be present. The formal admission of persons to degrees shall be made by the Chancellor, or in his absence by the Vice-Chancellor. Recipients of ordinary degrees shall be presented to the Chancellor or Vice-Chancellor by the Dean of the Faculty to which the degree belongs. Each recipient of an Honorary Degree shall be presented by a member of the University specially appointed for the purpose by the Council; provided that no person shall be admitted to any degree, ordinary or honorary, until he has signed the Register of Graduates and paid the fees prescribed. No University fee shall be required of persons admitted to Honorary Degrees.

74.—Notwithstanding this ordinance, degrees may in exceptional cases, on the recommendation of the Senate, be conferred upon persons *in absentia*, by special warrant, signed by the Chancellor or the Vice-Chancellor.

75.—The Council may on the recommendation of the Senate revoke the Degree or Degrees, Diplomas, Certificates and distinctions and all privileges connected therewith of any graduate of the University who shall be convicted of felony or of any indictable misdemeanour, or whose name shall have been removed for misconduct by a properly constituted legal authority from any official register or roll of members of the profession to which he belongs, and may restore on cause being shown any person whose degree has been revoked to the degree he previously enjoyed without further examination.

76.—Degrees may be conferred on members of the teaching staff of the University *ex-officio*.

#### INSPECTION OF SCHOOLS.

77.—The regulations for the Inspection and Examination of Schools and other Institutions, and the

scholars and students therein, and the regulations for the award of certificates of proficiency, shall be determined by the Council after report thereon by the Senate.

#### AFFILIATED INSTITUTIONS.

78.—A College, School, or other Educational Institution in the Midland Counties may apply to be recognised as an affiliated institution of the University. Such recognition shall only be given upon evidence of efficiency satisfactory to both Senate and Council. Students of any such affiliated Institution shall be permitted to attend at such Institution a course of study approved by the University instead of the whole or part of the first year's course of study at the University, in the Faculties of Science, Arts, Medicine or Commerce; and after presentation of Schedules of Qualification certifying that they have attended the classes and laboratory instruction and passed the class examinations prescribed by the University, and have been matriculated in the University, shall be admitted to the first University Examinations in those Faculties.

79.—Any College, School or Institution desiring to take advantage of the foregoing ordinance must—

- (a) Give satisfactory evidence of its educational status and that it is established on a permanent and effective footing.
- (b) Submit, for the approval of the Senate, courses of study of such scope and standard as may be accepted by the University instead of the whole or part of the first year's courses in the Faculties of Science, Arts, Medicine and Commerce, or any part thereof.

80.—The University shall in no case grant the privilege of this ordinance to any College, School or Institution for a period of more than five years, but such privilege may be renewed for a further period after a report from the Senate.

81.—The University reserves the right of inspecting the libraries, laboratories and the equipment and apparatus provided for practical work, and of enquiring into the qualifications of the teachers appointed to conduct the qualifying courses.

#### ASSOCIATE MEMBERS OF THE GUILD OF GRADUATES.

82.—Persons who were Associates of Mason University College on October 1st, 1900, may be admitted as Associate Members of the Guild of Graduates, and on all ceremonial and social occasions they shall be put on the same footing as Members of the Guild, but without power of voting at Meetings of the Guild.

83.—Associates may make application to their respective Faculties on or before 1st October, 1905, for admission to the Degree of Bachelor. They will be required to submit at the same time copies of their contributions to Medicine, Science, or Literature, or a Thesis specially composed for the occasion, and an account of the appointments which they hold or have held. These papers shall be submitted to Assessors, one of whom shall be an external examiner, and in the event of a Thesis having been submitted, these Assessors shall be at liberty to question the candidate upon it, should they see fit, or to call upon him to pass any examination they may think proper. On the report of the Assessors the Faculty shall decide in each case whether they will recommend the Senate to nominate the candidate for a Degree.

84.—The fee payable by Associates who are Candidates for any degree shall be £5.

85.—Students and members of the staff of Mason University College who would have been eligible for the Associateship before 30th September, 1901, had the College continued to exist, shall be permitted to apply for admission to the above privileges before 30th September, 1901.

## THE GUILD OF GRADUATES.

86.—Every person who has been admitted to a Degree in any Faculty of the University shall, after the lapse of such time as may hereinafter be prescribed by regulations, be eligible to be a Member of the Guild of Graduates, and may be elected a Member of the Guild after payment of such fee as may also be so prescribed.

87.—Any Member of the Guild of Undergraduates who shall become eligible to be a Member of the Guild of Graduates shall forthwith cease to be a Member of the Guild of Undergraduates.

88.—The Guild of Graduates shall be an organised Association of Graduates for the furthering of their common interests, and shall be the recognised means of communication between the Graduates on the one hand and the Court of Governors, Council, Senate, and other authorities of the University on the other hand.

89.—The Guild of Graduates may make laws for its internal management and administration, and the election of its officers, the alteration of its laws and all other matters requiring to be dealt with.

## THE GUILD OF UNDERGRADUATES.

90.—The Guild of Undergraduates shall consist of all the Undergraduate Students of the University. It shall be an organised Association of such Undergraduates for the furthering of their common interests and shall be the recognised means of communication between the Undergraduates on the one hand, and the Court of Governors, Council, Senate and other authorities of the University, on the other hand.

91.—The Guild of Undergraduates may make laws for its internal management and administration, the election of its officers, the alteration of its laws and all other matters requiring regulation, but no law shall be effective until approved by the Council.

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# University of Birmingham.

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THE KING.

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Vice-Chancellor:

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Pro-Vice-Chancellor and Treasurer:

FRANCIS CORDER CLAYTON, Esq., J.P.

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The Right Hon. The Earl of WARWICK.

The Right Hon. The Earl of BRADFORD.

The Right Hon. The Earl of DARTMOUTH.

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| JOHN HENRY LLOYD, Esq., M.A., J.P. . . . .        |   |                                                 |
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| LIEUT.-COL. JAMES PARCHETT, J.P. . . . .          |   |                                                 |
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| Professor R. S. HEATH, <i>Vice-Chairman and Secretary</i> , .. | 21st May, 1884          |
| Dorridge, Birmingham.                                          |                         |

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| 132, Bristol Road, Birmingham.            |                  |
| Professor C. LAPWORTH .. .. .             | 10th May, 1881   |
| 48, Frederick Road, Edgbaston.            |                  |
| Professor W. HILLHOUSE .. .. .            | 5th April, 1882  |
| 43, Calthorpe Road, Edgbaston.            |                  |
| Professor PERCY F. FRANKLAND .. .. .      | 6th June, 1894   |
| West Heath Road, Northfield.              |                  |
| Professor F. W. BURSTALL .. .. .          | 29th July, 1896  |
| 102, Bristol Road, Birmingham.            |                  |
| Professor ADRIAN J. BROWN .. .. .         | 3rd May, 1899    |
| West Heath House, Northfield.             |                  |
| Professor T. TURNER .. .. .               | 5th Mar., 1902   |
| 355, Bristol Road, Edgbaston.             |                  |
| Professor R. A. S. REDMAYNE .. .. .       | 5th Mar., 1902   |
| The Red Cottage, Yateley Road, Edgbaston. |                  |
| Professor W. W. WATTS .. .. .             | 20th April, 1904 |
| Holmwood, Four Oaks, Sutton Coldfield.    |                  |

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| 7, Barnsley Road, Edgbaston.         |                  |
| Professor CLOVIS BÉVENOT .. .. .     | 9th Dec., 1889   |
| Upland Road, Selly Park.             |                  |
| Professor H. G. FIEDLER .. .. .      | 2nd July, 1890   |
| Lifford Grove, King's Norton.        |                  |
| Professor W. MACNEILE DIXON .. .. .  | 6th June, 1894   |
| 43, Norman Road, Northfield.         |                  |
| Professor J. H. MURHEAD .. .. .      | 29th Sept., 1897 |
| 1, York Road, Edgbaston.             |                  |
| Professor J. H. B. MASTERMAN .. .. . | 13th June, 1902  |
| Queen's College, Birmingham.         |                  |
| Professor ALFRED HUGHES .. .. .      | 10th June, 1903  |
| 321, Hagley Road, Edgbaston.         |                  |

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Date of  
Appointment.

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| Professor GILBERT BARLING      | .. | .. | .. | .. | 24th Sept., 1885 |
| Professor ALFRED H. CARTER     | .. | .. | .. | .. | 17th March, 1892 |
| Professor BOSTOCK HILL         | .. | .. | .. | .. | 9th July, 1879   |
| Professor BENNETT MAY          | .. | .. | .. | .. | 16th June, 1887  |
| Professor R. SAUNDEY           | .. | .. | .. | .. | 5th July, 1892   |
| Professor E. B. WHITCOMBE      | .. | .. | .. | .. | 15th March, 1888 |
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| Professor JORDAN LLOYD         | .. | .. | .. | .. | 24th Sept., 1891 |
| Professor PRIESTLEY SMITH      | .. | .. | .. | .. | 14th July, 1897  |
| Professor R. F. C. LEITH       | .. | .. | .. | .. | 7th June, 1899   |
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*Assistant*: J. W. RUSSELL, M.A., M.D. (Cantab.), M.R.C.P.

**Surgery.**

*Professor*: BENNETT MAY, M.Sc.; M.B., B.S. (Lond.), F.R.C.S.

*Professor*: GILBERT BARLING, M.Sc.; M.B., B.S. (Lond.) F.R.C.S.

*Assistant*: G. HEATON, M.A., M.B., B.Ch. (Oxon.), F.R.C.S.

**Pathology and Bacteriology.**

*Professor*: R. F. C. LEITH, M.Sc.; M.A., M.B. (Edin.), F.R.C.P.E.

*Assistant Lecturers* ( JAMES MILLER, D.Sc.; M.D., B.Sc. (Edin.)  
in *Bacteriology*: ( C. LEEDHAM-GREEN, M.B., Ch.B., F.R.C.S.

*Demonstrator in Pathology*: J. D. STANLEY, M.D.; M.D. (Edin.).

( STANLEY BARNES, M.D. (Lond.), M.R.C.P.  
M.R.C.S.

*Assistant Curators* J. T. HEWETSON, Ch.M.; M.D. (Edin.),  
of the *Pathological* F.R.C.S.

*Museum*: THOMAS WILSON, Ch.M.; M.D. (Lond.),  
F.R.C.S.

*Special Lecturer in Pathology*: JAMES MILLER, M.D.

**Hygiene and Public Health.**

*Professor*: A. BOSTOCK HILL, M.Sc.; M.D., D.P.H.

*Assistant*: R. A. LYSTER, M.B., Ch.B.; D.P.H.; B.Sc. (Lond.).

**Materia Medica.**

*Lecturer*: J. COOLE KNEALE, M.B., Ch.B.; L.R.C.P., L.R.C.S. (Edin.), M.P.S.

*Demonstrator*: F. R. GREENWOOD, M.B., Ch.B.; M.D. (Lond.), M.R.C.S.

**Therapeutics.**

*Professor*: A. FOXWELL, M.Sc.; M.A., M.D. (Cantab.), F.R.C.P.

*Assistant*: W. A. POTTS, M.D.; B.A. (Cantab.), M.D., C.M. (Edin.).

**Midwifery.**

*Professor*: EDWARD MALINS, M.Sc.; M.D. (Edin.), F.R.C.P.

*Assistant*: C. E. PURSLOW, M.D. (Lond.), M.R.C.P.

**Gynæcology.**

*Professor*: J. W. TAYLOR, M.Sc.; M.D. (Brux.) F.R.C.S.

*Assistant*: C. E. PURSLOW, M.D. (Lond.), M.R.C.P.

**Forensic Medicine and Toxicology.**

*Professor:* J. T. J. MORRISON, M.Sc. ; M.A., M.B., B.C. (Cantab.),  
F.R.C.S.

*Lecturer on Toxicology:* A. BOSTOCK HILL, M.Sc. ; M.D.,  
D.P.H.

*Assistant:* R. A. LYSTER, M.B., Ch.B. ; D.P.H. ; B.Sc. (Lond.).

**Mental Diseases.**

*Professor:* E. B. WHITCOMBE, M.Sc. ; M.B., Ch.B., M.R.C.S.

**Operative Surgery.**

*Professor:* JORDAN LLOYD, M.Sc., M.D. ; M.B., M.S. (Dur.),  
F.R.C.S.

**Ophthalmology.**

*Professor:* PRIESTLEY SMITH, M.Sc. ; M.B., Ch.B., F.R.C.S.

**Dental Surgery.**

*Lecturer:* F. E. HUXLEY, M.D.S., M.R.C.S.

**Dental Anatomy and Physiology.**

*Lecturer:* JOHN HUMPHREYS, M.D.S., L.D.S.I., F.L.S.

**Dental Mechanics.**

*Lecturer:* A. E. DONAGAN, M.A. (Cantab.), L.D.S.

**Dental Histology and Pathology.**

*Lecturer:* J. D. WHITTLES, B.D.S., L.D.S.

**Dental Metallurgy.**

*Lecturer:* T. TURNER, M.Sc. ; A.R.S.M.

**Medical Diseases of the Mouth, &c.**

*Lecturer:* T. STACEY WILSON, M.D. (Edin.), M.R.C.P.

**Surgical Diseases of the Mouth, &c.**

*Lecturer:* FRANK MARSH, F.R.C.S.

**Operative Dental Surgery.**

*Lecturer:* W. T. MADIN, L.D.S.

**Commerce and Public Finance.**

*Professor:* W. J. ASHLEY, M.Com. ; M.A., late Fellow of Lincoln  
College, Oxford.

*Lecturer:* A. W. KIRKALDY, M.A., B.Litt. (Oxon.).

*Special Lecturer on the Technique of Trade:* A. W. KIRKALDY,  
M.A.

**Accounting.**

*Professor:* LAWRENCE R. DICKSEE, M.Com. ; F.C.A.

**Commercial Law.**

*Lecturer:* FRANK TILLYARD, M.A., Barrister-at-Law.

**Emeritus Professors :****English.***Professor :* EDWARD ARBER, F.S.A.**Engineering.***Professor :* ROBERT H. SMITH, M.I.M.E., Assoc. M.I.C.E.**Forensic Medicine.***Professor :* J. ST. S. WILDERS, M.R.C.S.**DAY TRAINING COLLEGE.***Master of Method (Men) :* FRANK ROSCOE.*Assistant :* C. W. MILLIGAN, B.A. (Oxon.)*Teacher of Music :* ARNOLD GRIFFIN.*Head Mistress (Women) :* ANNE HOLLINGWORTH JOYCE, B.A.

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|---------------------|---|-------------------------------------|
| <i>Assistants :</i> | { | FLORENCE C. M. CLARK, B.A. (Lond.). |
|                     |   | ADA BLANCHE TAYLOR.                 |
|                     |   | ANNIE E. WARMINGTON, B.A. (Lond.).  |
|                     |   | EDITH U. SOWERBUTTS, B.Sc. (Vict.). |
|                     |   | AMY J. WALKER, B.A. (Lond.).        |
|                     |   | FRANCES COLLIE, B.A.                |

**Secretary :**

GEO. H. MORLEY.

**Assistant Secretary :**

FREDK. E. MOORE.

**Librarian :**

WILLIAM H. COPE.

**Clerk to the Dean of the Faculty of Medicine :**

EDWARD B. LAWLEY.

## UNIVERSITY EXAMINERS FOR DEGREES.

### *Mathematics—*

F. S. CAREY, M.A.,

Professor of Mathematics in the University of Liverpool.

Professor R. S. HEATH.

### *Physics—*

L. R. WILBERFORCE, M.A.,

Professor of Physics in the University of Liverpool.

Professor J. H. POYNTING.

### *Chemistry—*

H. BEEREFON BAKER, M.A., F.R.S.,

Christ Church, Oxford.

Professor PERCY F. FRANKLAND.

### *Zoology—*

W. A. HERDMAN, D.Sc., F.R.S.,

Professor of Zoology in the University of Liverpool.

Professor T. W. BRIDGE.

### *Botany—*

J. B. FARMER, M.A., F.R.S.,

Professor of Botany at the Royal College of Science.

Professor W. HILLHOUSE.

### *Geology (including Geography)—*

J. J. H. TEALL, M.A., F.R.S.,

Late Fellow of St. John's College, Cambridge; Director  
of H.M. Geological Survey of Great Britain and  
Ireland.

Professor C. LAPWORTH.

### *Civil and Mechanical Engineering—*

D. S. CAPPER, M.A., M.I.C.E.,

Professor of Engineering, King's College, London.

Professor F. W. BURSTALL.

### *Electrical Engineering—*

J. A. FLEMING, D.Sc., F.R.S.,

Professor of Electrical Engineering, University College,  
London.

Professor F. W. BURSTALL.

### *Metallurgy—*

A. K. HUNTINGTON, A.R.S.M., M.I.M.M.,

Professor of Metallurgy in King's College, London.

Professor T. TURNER.

*Mining—*

ARTHUR SOPWITH, F.G.S., M.I.M.E.,  
Late President of the Institute of Mining Engineers.  
Professor R. A. S. REDMAYNE.

*Brewing—*

FRANK WILSON, Esq.  
Professor ADRIAN J. BROWN.

*Classics—*

S. G. OWEN, M.A.,  
Fellow and Tutor of Christ Church, Oxford.  
Professor E. A. SONNENSCHN.

*English—*

WALTER A. RALEIGH, M.A.,  
Professor of English Language and Literature in the  
University of Oxford.  
Professor W. MACNEILE DIXON.

*French—*

VICTOR KASTNER, B.ès.L., M.A.,  
Professor of French in the Victoria University of  
Manchester.  
Professor CLOVIS BÉVENOT.

*German—*

A. W. SCHÜDDEKOPF, M.A.,  
Professor of German in the Yorkshire College, Leeds.  
Professor H. G. FIEDLER.

*Philosophy—*

J. MACCUNN, M.A.,  
Professor of Philosophy in the University of Liverpool.  
Professor J. H. MUIRHEAD.

*History—*

R. LODGE, M.A.,  
Professor of History in the University of Edinburgh.  
Professor J. H. B. MASTERMAN.

*Education—*

W. H. WOODWARD, B.A.,  
Professor of Education in the University of Liverpool.  
Professor A. HUGHES.  
ANNE HOLLINGWORTH JOYCE.  
FRANK ROSCOE.

*Anatomy—*

F. G. PARSONS, F.R.C.S., F.Z.S., F.L.S.,  
Lecturer on Anatomy, St. Thomas's Hospital, London.  
Professor B. C. A. WINDLE.

*Physiology—*

C. S. SHERRINGTON, M.A., M.D., F.R.S.,

Professor of Physiology, University College, Liverpool.

Professor E. WACE CARLIER.

*Medicine—*

SAMUEL WEST, M.D.,

Lecturer on Medicine at St. Bartholomew's Hospital.

Professor R. SAUNDREY.

Professor A. H. CARTER.

*(Clinical)* O. J. KAUFFMANN, M.D. (Lond.).*Surgery—*

HOWARD MARSH, F.R.C.S.,

Professor of Surgery in the University of Cambridge.

Professor BENNETT MAY.

Professor GILBERT BARLING.

*(Operative)* Professor JORDAN LLOYD.*(Clinical)* GEORGE HEATON, M.B., Ch.B., F.R.C.S.*Ophthalmology—*

Professor PRIESTLEY SMITH.

*Mental Diseases—*

Professor E. B. WHITCOMBE.

*Pathology—*

ROBERT MUIR, M.D., F.R.C.P.,

Professor of Pathology, University of Glasgow.

Professor R. F. C. LEITH.

*Hygiene and Public Health—*

LOUIS C. PARKES, M.D., D.P.H.,

Lecturer on Public Health at St. George's Hospital,  
London.

Professor A. BOSTOCK HILL.

*Therapeutics and Pharmacology—*

SAMUEL WEST, M.D.,

Lecturer on Medicine at St. Bartholomew's Hospital.

Professor A. FOXWELL.

*Midwifery and Gynaecology—*

AMAND J. M. ROUTH, M.D., F.R.C.P.,

Obstetric Physician and Lecturer on Midwifery,  
Charing Cross Hospital, London.

Professor EDWARD MALINS.

Professor J. W. TAYLOR.



*Forensic Medicine and Toxicology—*

T. STEVENSON, M.D., F.R.C.P.,  
Lecturer on Medical Jurisprudence and Toxicology,  
Guy's Hospital, London.

Professor J. T. J. MORRISON.

Professor A. BOSTOCK HILL.

*Dental Subjects—*

J. HOWARD MUMMERY, M.R.C.S., L.D.S.,  
Examiner in Dental Surgery, Royal College of Surgeons  
of England.

Professor R. F. C. LEITH.

JOHN HUMPHREYS, M.D.S., F.L.S.

F. E. HUXLEY, M.R.C.S., M.D.S.

A. E. DONAGAN, M.A., L.D.S.

J. D. WHITTLES, B.D.S.

W. T. MADIN, L.D.S.

F. MARSH, F.R.C.S.

T. STACEY WILSON, M.D.

*Commerce—*

J. H. CLAPHAM, M.A.,  
Professor of Economics in the Yorkshire College,  
Leeds.

Professor W. J. ASHLEY.

*Accounting—*

ERIC M. CARTER, F.C.A.

Professor LAWRENCE R. DICKSEE.

## REPRESENTATIVES OF THE UNIVERSITY

### ON SCHOOLS AND OTHER INSTITUTIONS.

*General Medical Council*—Professor B. C. A. WINDLE.

*Education Committers*—

*Birmingham*—Professor R. S. HEATH.

*Bridgnorth*—Professor A. HUGHES.

*Coventry*—Professor H. G. FIEDLER.

*King's Norton and Northfield*—R. C. PORTER, Esq., M.Sc.

*Longton*—Professor R. A. S. REDMAYNE.

*Leicestershire*—Professor W. HILLHOUSE.

*Oldbury*—FRANK ROSCOE, Esq.

*Rowley Regis*—Miss A. H. JOYCE.

*Shropshire*—Professor C. LAPWORTH.

*Smethwick*—A. W. KIRKALDY, Esq., M.A.

*Staffordshire*—Professor A. HUGHES.

*Sutton Coldfield*—Professor W. W. WATTS.

*Tunstall*—F. HARRISON, Esq., M.A.

*Warwickshire*—Professor J. H. MUIRHEAD.

*West Bromwich*—Professor E. A. SONNENSCHIN.

*Wolverhampton*—Professor A. HUGHES.

*Worcestershire*—Professor T. TURNER.

*Burslem Exhibition Endowment*—F. HARRISON, Esq., M.A.

*Alcester, Newport's School*—ARTHUR L. CHANCE, Esq.

*Atherstone Grammar School*—Professor T. W. BRIDGE.

*Bewdley Grammar School*—Rev. S. R. JAMES.

*Birmingham Blue Coat School*—Sir JOHN C. HOLDER, Bart., and  
Mr. Councillor A. J. REYNOLDS.

*Birmingham, King Edward's School*—Sir OLIVER LODGE.

*Birmingham and Midland Institute*—Professor H. G. FIEDLER.

*Brewood Grammar School*—Professor T. TURNER.

*Coleshill Grammar School*—Dr. R. M. SIMON.

*Coventry Grammar School*—Dr. T. WEBB FOWLER.

- Dudley Grammar School*—Professor C. LAPWORTH.  
*Halesowen Grammar School*—J. H. HOPKINSON, Esq., B.A.,  
*Handsworth Grammar School*—Professor J. H. MUIRHEAD, and  
 Professor BOSTOCK HILL.  
*Hanley Castle Grammar School*—A. O. HOLBECH, Esq., L.R.C.P.  
*Hartlebury Grammar School*—G. W. GROSVENOR, Esq., J.P.  
*Hinckley Grammar School*—Professor W. HILLHOUSE.  
*Jackson's Charity*—Mr. Councillor A. J. REYNOLDS.  
*Kidderminster Grammar School*—JOHN BRINTON, Esq.  
*Kinver Grammar School*—Professor T. TURNER.  
*Lady Warwick Agricultural College*—Professor W. HILLHOUSE.  
*Lichfield Grammar School*—Professor E. A. SONNENSCHNEIN.  
*Lutterworth Endowed Schools*—Rev. JAMES WENT, M.A.  
*Stafford, King Edward's School*—F. E. KITCHENER, Esq., M.A.  
*Stourbridge Grammar School*—ROWLAND HILL, Esq., M.A., LL.D.  
*Sutton Coldfield Grammar School*—Professor W. W. WATTS.  
*Tamworth Grammar School*—Rev. J. E. HUXLEY BLAKE, M.A.  
*Walsall, Queen Mary's School*: Professor A. HUGHES.  
*Wolverhampton Grammar School*—LAURENCE W. HODSON, Esq.  
*Wolverley, Scabright's Endowed Schools*—  
 G. W. GROSVENOR, Esq., J.P.  
*Yardley Charity Estate*—  
 W. WRIGHT WILSON, Esq., F.R.C.S. (Edin.)
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## ACADEMIC COSTUME.

## GOWNS.

*Undergraduates.*—Gown of black stuff, similar to the Oxford Scholars' Gown, with the fore-arm seam open.

*Bachelors.*—Gown of black stuff with an open sleeve.

*Masters.*—Gown of black stuff or silk, similar to a Cambridge M.A. Gown with ribbons, but with a └-shaped slit in the sleeve.

*Doctors.*—Robe of scarlet cloth of the same shape as the Cambridge Doctors' Gown, trimmed with silk of the colour characteristic of the Faculty.

*Doctors' Undress.*—Gown of black stuff or silk of the same shape as the Masters' Gown, but edged with braid.

## HOODS.

## FACULTY OF SCIENCE.

*B.Sc.*—Black silk or stuff edged with silver-grey watered silk.

*M.Sc.*—Black silk lined with silver-grey watered silk.

*D.Sc.*—Scarlet cloth lined with silver-grey watered silk.

## FACULTY OF ARTS.

*B.A.*—Black silk or stuff edged with electric-blue watered silk.

*M.A.*—Black silk lined with electric-blue watered silk.

*D.Phil. and D.Litt.*—Scarlet cloth lined with electric-blue watered silk.

## FACULTY OF MEDICINE.

*M.B. and Ch.B.*—Black silk or stuff edged with cardinal watered silk.

*Ch.M.*—Black silk lined with cardinal watered silk.

*M.D.*—Scarlet cloth lined with cardinal watered silk.

## DEPARTMENT OF DENTISTRY.

*B.D.S.*—Black silk or stuff edged with dark red (Grenat) watered silk.

*M.D.S.*—Black silk lined with dark red (Grenat) watered silk.

## FACULTY OF COMMERCE.

*B.Com.*—Black silk or stuff edged with terra-cotta watered silk.

*M.Com.*—Black silk lined with terra-cotta watered silk.

## HONORARY DEGREE.

*LL.D.*—Scarlet cloth lined with bronze-green watered silk.

## CAPS.

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Undergraduates, Masters, and Doctors will wear the ordinary square College Cap, and Doctors in full dress will wear a cap of black velvet with a gold cord, lined with the colour characteristic of the Faculty.

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*Robe-Makers to the University:—*

MESSRS. EDE, SON, & RAVENSCROFT, 93 AND 94, CHANCERY LANE, LONDON.

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# UNIVERSITY OF BIRMINGHAM.

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SESSION 1904-1905.

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FACULTIES OF SCIENCE, ARTS AND COMMERCE.

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## UNIVERSITY TERMS.

The University Session, or academic year, is divided into three terms—Winter, Spring, and Summer. The WINTER TERM commences on Monday, October 3rd, and ends on Saturday, December 17th, 1904; the SPRING TERM commences on Monday, January 16th, 1905, and ends on Saturday, April 1st; the SUMMER TERM commences on Wednesday, April 26th, and ends on Saturday, July 8th.

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## ADMISSION OF STUDENTS.

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1.—All the courses of study are open to men and women on the same terms. Separate cloak rooms and reading rooms in the east wing (ground floor) are reserved for the accommodation of women students.

2.—The classes and laboratories of the University are open to all who are sufficiently prepared to take advantage of the instruction offered. Every person seeking admission as a student to a recognised course of instruction in preparation for a diploma, certificate, or other professional qualification must produce such testimonial or reference and pass such examination as shall be deemed necessary by the Vice-Principal; but no examination is as a rule deemed necessary in the case of students attending classes for the purposes of general culture, and not in preparation for any University Examination.

3.—Students on admission are required to sign a declaration that they will observe the Ordinances of the University and conform to such regulations as have been or may be made for the maintenance of order in the University and in the classes they attend.

4.—The Vice-Principal, the Deans of the Faculties and the Professors will be present on Friday, September 30th, from ten o'clock a.m. to one o'clock p.m. to confer with intending students and give them advice respecting their courses of study, and may be seen at other times by appointment.

5.—Application for admission to classes must be made either in writing or personally to the Secretary of the University. The Secretary's office is open from 9 to 1 and from 2 to 5, except on Saturdays, when it is open from 9 to 1 only.

6.—All Fees are to be paid in advance (*i.e.*, at the beginning of the Session or Term on account of which they are due) at the Secretary's Office in the University. Cheques should be drawn in favour of Mr. Geo. H. Morley. *Students should not enter for classes until after mature consideration, as fees once paid cannot be returned.*

7.—Students intending to take lodgings in Birmingham or the vicinity are recommended to place themselves in communication with the Secretary.

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### FEES.

The Fee for each course of study is appended to the Syllabus of the course. *These fees are all subject to revision from year to year.*

Students are required to pay a Membership Fee, which includes all charges for Registration, and for the use of the Library and Common Rooms.

The following statement shows the Membership Fees for a Session or a Term :—

|                                                                | Session. |    |    |     | Term. |    |    |
|----------------------------------------------------------------|----------|----|----|-----|-------|----|----|
|                                                                | £        | s. | d. |     | £     | s. | d. |
| Students attending not more than<br>three hours per week... .. | 0        | 10 | 6  | ... | 0     | 5  | 0  |
| All other Students ... ..                                      | 1        | 1  | 0  | ... | 0     | 10 | 6  |

### REGULATIONS TO BE OBSERVED BY ALL STUDENTS.

1.—Students are not permitted to be in the University buildings before 8.45 a.m., nor after 6 p.m., unless attending classes or the meetings of some Society of the University.

2.—All students are required to conduct themselves in a quiet and orderly manner whilst in the University, not only during lecture hours, but on entering and leaving the building.

3.—Smoking is prohibited in the corridors and front hall of the University buildings.

4.—Card playing is prohibited in all parts of the buildings.

5.—Students committing any damage to the University building, or University property, will be required to pay for making good the same, and may be excluded from the University till payment is made.

6.—Students are required to attend punctually and regularly at the lectures and classes for which their names are entered.

7.—When a student has been absent it is desirable that he should report the cause of his absence to the Professor on his return to the class. In the event of illness or unavoidable absence notice should be sent by the absentee to the Dean of his Faculty as soon as convenient.

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### LIBRARY REGULATIONS.

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1.—The Library is open daily during the Session from 9 a.m. to 6 p.m., except on Saturdays when it is closed at 1 p.m. It is closed at 5 p.m. during the vacations. It is also closed during the month of August for cleaning purposes.

2.—The Library being set apart expressly for study, *all conversation is strictly prohibited.* Students are



required to sit at the tables, and are not permitted to stand about in any part of the Library.

3.—Students are permitted to take books from the shelves, but they are to be *returned to the Librarian* and are not to be re-placed upon the shelves by the readers.

4.—The Library is to be used by *present day students, for reference and study only*, and no books, pamphlets or journals, &c., are to be taken from it, except by members of the Teaching Staff.

5.—Certain valuable books of reference (including Dictionaries and Encyclopædias) as indicated by the Council, are not allowed to be taken from the Library. Current Journals, Transactions of Societies, &c., are not allowed to be taken from the Library until after the publication of a succeeding part.

6.—In the event of a book being damaged by scribbling, tearing, &c., the person damaging it will be required to supply another copy in its place to the satisfaction of the Council. Any defect in a printed book should be pointed out to the Librarian.

7.—Books borrowed from the Library must be returned to the Librarian before the expiration of 15 days, subject to a renewal for a further period of 15 days, unless required by another reader.

8.—All books, pamphlets, &c., in the hands of borrowers must be returned to the Librarian on or before the last day of the Session.

9.—The Librarian is authorised to exclude temporarily any person infringing the regulations of the Library.

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### LOCKERS FOR BOOKS, &c.

Lockers are provided in the locker room (first floor), and in the hat and coat room of the Medical School to enable students to preserve their books and papers in safety, at a charge of one shilling per Term, or two

shillings and sixpence per Session. Each student will be supplied with a key, upon which a deposit of one shilling will be charged. The key must be delivered up on or before the last day of the Term or Session for which payment has been made, or the deposit will be forfeited.

A master-key of all the lockers is kept in the office.

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### UNDERGRADUATES.

Although the classes in the University are open to all students who may wish to join them, students are strongly recommended to pass some qualifying examination and be matriculated before entering the University. It is only students who have been matriculated who become undergraduates and enjoy the privileges of Membership of the University and the Guild of Undergraduates and are eligible to become candidates for degrees in the University. Undergraduates and Graduates of other Universities are required to wear academic dress when in attendance upon University lectures and examinations, when calling upon the officers of the University, and upon all official occasions. Students who are not Undergraduates or Graduates are not entitled to wear academic dress.

Students who have once been matriculated are entitled to the privileges of membership of the University and of the Guild of Undergraduates, only so long as they are in actual attendance on a course of study approved by a Faculty of the University.

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### REGULATIONS FOR MATRICULATION.

Matriculation is the formal admission of a student to membership of the University.

Students may be matriculated in any Faculty provided that they have passed the Matriculation Examination of the University, or can produce evidence that they have

passed one of the Examinations which the University accepts as exempting from the Matriculation Examination. A schedule of such examinations is appended. Persons desiring to be matriculated by virtue of any other examination than the Matriculation Examination of the University are required to pay a fee of £1.

A student may be matriculated in the Faculty of Science who has passed the Matriculation Examination in the *four* following subjects, viz: (i.) English History and Literature; (ii.) Mathematics; (iii.) a Science, and (iv.) one foreign language; but he will not be allowed the next University Examination until he has passed in the fifth subject.

A student may be matriculated in the Faculty of Arts who has passed the Matriculation Examination in the *four* following subjects, viz.: (i.) English History and Literature; (ii.) Latin; (iii.) one other foreign language; (iv.) either Mathematics or a Science; but he will not be allowed the next University Examination until he has passed in the fifth subject.

A student may be matriculated in the Faculty of Medicine who has passed the Matriculation Examination in the *four* following subjects, viz.: (i.) English History and Literature; (ii.) Latin; (iii.) one other foreign language; (iv.) Mathematics.

A student may be matriculated in the Faculty of Commerce who has passed the Matriculation Examination in the *four* following subjects, viz.: (i.) English History and Literature; (ii.) Mathematics; (iii.) one of the prescribed Languages (French, German, Italian, Spanish, Latin); and (iv.) *either* one of the prescribed Sciences (Mechanics, Chemistry, Physiography) *or* another Language; but he will not be allowed the next University Examination until he has passed in the fifth subject.

The fee for examination or re-examination in the fifth subject is 10s.

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## MATRICULATION EXAMINATION.

There will be two Matriculation Examinations in the year 1905, commencing on Monday, June 5th, and Monday, September 11th, respectively. Candidates for these examinations must apply to the Registrar for a form of entry, which must be returned on or before May 5th or August 30th respectively, accompanied by a certificate of good character from the last school attended or from some responsible person, and by the proper fee.

The Fee for the Matriculation Examination is £2; and in cases of failure or withdrawal from the examination, for each subsequent Examination £1.

The examination will be conducted partly by means of printed papers, partly by means of a *viva voce* examination.

Every candidate, except those who intend entering the Faculty of Medicine, must pass in five subjects before being allowed the next University examination, viz. :—

- (1) English History and Literature.
- (2) and (3) Any two Languages out of the following :—Latin, Greek, French, German, Italian, and Spanish.\*
- (4) Mathematics.
- (5) One Science subject chosen from the following :—  
Mechanics, Chemistry, Physiography, Botany.  
Animal Biology.

Candidates for Degrees in Engineering are required to take Mechanics as the Science Subject.

Candidates for Degrees in Engineering may take higher Mathematics instead of one of the languages 2 and 3, and in that case will be awarded a Special Engineering Matriculation Certificate.

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\* Other modern languages such as Portuguese, Arabic, Japanese will be accepted as subjects of examination provided that candidates give notice to the Registrar on or before April 20th, for the June examination, and on or before June 15th, for the September examination.

The particulars of the foregoing subjects of examination in June and September, 1905, are set out in the following schedule. The books to be prepared in Latin, Greek, French, German, Italian, and Spanish are left to the choice of candidates, subject to the approval of the University, but they should be of about the same length and standard of difficulty as the books suggested under the various headings below.

## 1. English History and Literature.

### A. History of the English People from 1066.

It is desired that students should give attention to the social and literary, as well as to the political and geographical aspects of history. The main line of treatment expected may be gathered from J. R. Green's "Short History of the English People." In general eighteen or twenty questions will be set, of which candidates will be expected to answer not more than seven or eight.

- B. English composition : Candidates will be required to write three or four short compositions on subjects drawn from one of the following groups :

Groups for 1905 :

- (a) Shakespere : Julius Caesar.  
Milton : Lycidas ; L'Allegro ; Il Penseroso.  
Lowell's Essay on Milton.
- (b) Pope's Rape of the Lock.  
Sir Roger de Coverley Papers.  
Macaulay's Essay on Addison.
- (c) Burke's Speech on Conciliation with America.  
Wordsworth :  
Ode on Intimations of Immortality.  
Laodamia.  
Character of the Happy Warrior.  
Lines written above Tintern Abbey.  
Coleridge :  
Ancient Mariner and Christabel.

**2 and 3. (a) Latin and Greek.**

- (i.) Translation of easy passages at sight, with questions on Grammar (Accidence and Syntax).
- (ii.) Easy Composition.
- (iii.) A *viva voce* examination on the prepared work, including the reading aloud of passages with due regard to quantities and expression.

For prepared work the following books (or books of similar length and standard of difficulty) may be offered in June and September, 1905 :—

Latin : Cicero, *Pro Lege Manilia*.

Greek : Euripides, *Medea*.

**(b) French.**

- (i.) Translation of easy passages at sight, with questions on Grammar (Accidence and elementary Syntax).
- (ii.) Easy Composition and Dictation.
- (iii.) A *viva voce* examination on the prepared book, including the reading aloud and translation of selected passages, and easy conversation based on them.

For prepared work one of the following books (or any other book of similar length and standard of difficulty) may be offered in June and September, 1905 :—

A. Dandet, *Le Petit Chose en Province* (Hachette).

L. Halévy, *L' Abbé Constantin* (Hachette).

**(c) German.**

- (i.) Translation of easy passages at sight, with questions on Grammar (Accidence and elementary Syntax).
- (ii.) Easy Composition and Dictation.
- (iii.) *Viva voce*. Reading aloud and translation of passages from the prepared book, and easy conversation based on them.

For prepared work one of the following books (or any other book of similar length and standard of difficulty) may be offered in June and September, 1905 :—

Th. Ebner, *Herr Walther von der Vogelweide* (Macmillan & Co.).

P. Heyse, *L' Arrabiata* (Heath & Co.).

(d) **Italian.**

- (i.) Translation of easy passages at sight, with questions on Grammar (Accidence and elementary Syntax).
- (ii.) Easy Composition and Dictation.
- (iii.) *Viva voce.* Reading aloud and translation of passages from the prepared book, and easy conversation based on them.

For prepared work one of the following books (or any other approved book of similar length and standard of difficulty) may be offered in June and September, 1905.

Bersezio. *Il Cane del Cielo* (Richter, Davos).

Pellico. *Le Mie Prigioni.*

(e) **Spanish.**

- (i.) Translation of easy passages at sight, with questions on Grammar (Accidence and elementary Syntax).
- (ii.) Easy Composition and Dictation.
- (iii.) *Viva voce.* Reading aloud and translation of passages from the prepared book, and easy conversation based on them.

For prepared work the following book (or any other approved book of similar length and standard of difficulty) may be offered in June and September, 1905.

Cervantes. *The Adventure of the Wooden Horse and Sancho Panza, Governor of Barataria* (Clarendon Press).

(f) **Higher Mathematics.** (For Engineers only.)

*Algebra.* — Elementary properties of surds and imaginaries ; simultaneous quadratics and equations like

quadratics ; ratio, proportion and variation ; arithmetical and geometrical progressions and other simple series ; theory of indices ; theory and practical applications of logarithms ; permutations and combinations ; the binomial theorem for a positive integral exponent.

*Trigonometry.*—Trigonometrical ratios of acute angles ; solution of right-angled triangles, and simple problems of heights and distances ; circular measure of angles ; length of arcs of circles ; angles of any magnitude and sign ; trigonometrical ratios of obtuse angles ; sine, cosine, and tangent of the sum and difference of angles ; formulæ for the ratios of the double angle, triple angle, and the half angle ; transformation of sums and differences of sines and cosines into products, and vice-versâ ; properties of triangles ; solution of triangles ; problems on heights and distances ; the chief circles related to a triangle ; regular polygons ; areas of circles, sectors, and segments.

*Geometry.*—The substance of Euclid, Books VI. and XI., 1—21, together with properties, areas of surface, and volumes of polyhedra, cylinders, cones, and spheres ; elementary theory of projection and perspective.

#### 4. Mathematics.

1. *Arithmetic.*—A knowledge of recurring decimals and of the process of extracting cube root will not be required.

The use of algebraical symbols and processes will be permitted.

2. *Elementary Algebra*, viz., addition, subtraction, multiplication and division ; simple equations ; fractions ; highest common factor, lowest common multiple ; quadratic equations ; solutions of two simultaneous equations, one at least being linear ; simple graphs ; problems requiring the classes of equations specified ; simple questions on fractional indices ; the nature and simple properties of logarithms to the base 10, with easy applications of four-figure tables ; ratio and proportion ; arithmetic progression, finite geometric progressions.



**Geometry.**

The paper in Geometry will contain questions on Practical and on Theoretical Geometry. Every candidate will be expected to answer questions in both branches of the subject.

The questions on Practical Geometry will be set on the constructions contained in the annexed Schedule A, together with easy extensions of them. In cases where the validity of a construction is not obvious, the reasoning by which it is justified may be required. Every candidate must provide himself with a ruler graduated in inches and tenths of an inch, and in centimetres and millimetres, a set square, a protractor, compasses, and a hard pencil. All figures should be drawn accurately. Questions may be set in which the use of the set square or of the protractor is forbidden.

The questions on Theoretical Geometry will consist of theorems contained in the annexed Schedule B, together with questions upon these theorems, easy deductions from them, and arithmetical illustrations. Any proof of a Proposition will be accepted which appears to the Examiners to form part of a systematic treatment of the subject; the order in which the theorems are stated in Schedule B is not imposed as the sequence of their treatment.

In the proof of theorems and deductions from them, the use of hypothetical constructions will be permitted. Proofs which are only applicable to commensurable magnitudes will be accepted.

**SCHEDULE A.**

Bisection of angles and of straight lines. Construction of perpendiculars to straight lines. Construction of an angle equal to a given angle. Construction of parallels to a given straight line. Simple cases of the construction from sufficient data of triangles and quadrilaterals. Division of straight lines into a given number of equal parts or into parts in any given pro-

portions. Construction of a triangle equal in area to a given polygon. Construction of tangents to a circle and of common tangents to two circles. Simple cases of the construction of circles from sufficient data. Construction of a fourth proportional to three given straight lines and a mean proportional to two given straight lines. Construction of regular figures of 3, 4, 6 or 8 sides in or about a given circle. Construction of a square equal in area to a given polygon.

#### SCHEDULE B.

*Angles at a Point.*—If a straight line stands on another straight line, the sum of the two angles so formed is equal to two right angles; and the converse. If two straight lines intersect, the vertically opposite angles are equal.

*Parallel Straight Lines.*—When a straight line cuts two other straight lines, if (i) a pair of alternate angles are equal, or (ii) a pair of corresponding angles are equal, or (iii) a pair of interior angles on the same side of the cutting line are together equal to two right angles, then the two straight lines are parallel; and the converse. Straight lines which are parallel to the same straight line are parallel to one another.

*Triangles and Rectilinear Figures.*—The sum of the angles of a triangle is equal to two right angles. If the sides of a convex polygon are produced in order, the sum of the angles so formed is equal to four right angles. If two triangles have two sides of the one equal to two sides of the other, respectively, and also the angles contained by those sides equal, the triangles are congruent. If two triangles have two angles of the one equal to two angles of the other, respectively, and also one side of the one equal to the corresponding side of the other, the triangles are congruent. If two sides of a triangle are equal, the angles

opposite to these sides are equal; and the converse. If two triangles have the three sides of the one equal to the three sides of the other, respectively, the triangles are congruent. If two right-angled triangles have their hypotenuses equal, and one side of the one equal to one side of the other, the triangles are congruent. If two sides of a triangle are unequal, the greater side has the greater angle opposite to it; and the converse. Of all the straight lines that can be drawn to a given straight line from a given point outside it, the perpendicular is the shortest. The opposite sides and angles of a parallelogram are equal, each diagonal bisects the parallelogram, and the diagonals bisect one another. If there are three or more parallel straight lines, and the intercepts made by them on any straight line that cuts them are equal, then the corresponding intercepts on any other straight line that cuts them are also equal.

*Areas.*—Parallelograms on the same or equal bases and of the same altitude are equal in area. Triangles on the same or equal bases and of the same altitude are equal in area. Equal triangles on the same or equal bases are of the same altitude. Illustrations and explanations of the geometrical theorems corresponding to the following algebraical identities:—

$$\begin{aligned} k(a + b + c + \dots) &= ka + kb + kc + \dots, \\ (a + b)^2 &= a^2 + 2ab + b^2, \\ (a - b)^2 &= a^2 - 2ab + b^2, \\ a^2 - b^2 &= (a + b)(a - b). \end{aligned}$$

The square on a side of a triangle is greater than, equal to, or less than the sum of the squares on the other two sides, according as the angle contained by those sides is obtuse, right or acute. The difference in the cases of inequality is twice the rectangle contained by one of the two sides and the projection on it of the other.

*Loci.*—The locus of a point which is equidistant from two fixed points is the perpendicular bisector of the straight line joining the two fixed points. The locus of a point which is equidistant from two intersecting straight lines consists of the pair of straight lines which bisect the angles between the two given lines.

*The Circle.*—A straight line, drawn from the centre of a circle to bisect a chord which is not a diameter, is at right angles to the chord; conversely, the perpendicular to a chord from the centre bisects the chord. There is one circle, and one only, which passes through three given points not in a straight line. In equal circles (or, in the same circle) (i) if two arcs subtend equal angles at the centres, they are equal; (ii) conversely, if two arcs are equal, they subtend equal angles at the centres. In equal circles (or, in the same circle) (i) if two chords are equal, they cut off equal arcs; (ii) conversely, if two arcs are equal, the chords of the arcs are equal. Equal chords of a circle are equidistant from the centre; and the converse. The tangent at any point of a circle and the radius through the point are perpendicular to one another. If two circles touch, the point of contact lies on the straight line through the centres. The angle which an arc of a circle subtends at the centre is double that which it subtends at any point on the remaining part of the circumference. Angles in the same segment of a circle are equal; and, if the line joining two points subtends equal angles at two other points on the same side of it, the four points lie on a circle. The angle in a semicircle is a right angle; the angle in a segment greater than a semicircle is less than a right angle; and the angle in a segment less than a semicircle is greater than a right angle. The opposite angles of any quadrilateral inscribed in a circle are

supplementary; and the converse. If a straight line touch a circle, and from the point of contact a chord be drawn, the angles which this chord makes with the tangent are equal to the angles in the alternate segments. If two chords of a circle intersect either inside or outside the circle the rectangle contained by the parts of the one is equal to the rectangle contained by the parts of the other.

*Proportion and Similar Triangles.*—If a straight line is drawn parallel to one side of a triangle, the other two sides are divided proportionally; and the converse. If two triangles are equiangular their corresponding sides are proportional; and the converse. If two triangles have one angle of the one equal to one angle of the other and the sides about these equal angles proportional, the triangles are similar. The internal bisector of an angle of a triangle divides the opposite side internally in the ratio of the sides containing the angle, and likewise the external bisector externally. The ratio of the areas of similar triangles is equal to the ratio of the squares on corresponding sides.

## 5. (a) Mechanics.

*Statics.* Force measured in pounds weight or grammes weight. Equilibrium under two equal and opposite forces. Equality of the action and reaction between two bodies. Transmissibility of force by strings, ropes, and rigid connexions. Experimental investigation of the conditions for the equilibrium of a body when acted on by three parallel forces. Resultant. Moment of a force about a point. Balancing of moments when a body is in equilibrium. Centre of parallel forces. Centre of gravity and the experimental investigation of its position. Stability and instability of a body, supported from a point or on a base. Work and rate of

working. Foot pound and horse power. The lever, the balance, the single string system of pulleys, the wheel and axle, the differential pulley, as illustrations of parallel forces, and of the principle of work. Experimental investigation of the conditions for the equilibrium of a body when acted on by three forces not parallel. The triangle of forces. The parallelogram of forces. Graphic resolution and composition of forces. Simple cases of resultant of two forces acting at a point. Balancing of moments when a body is in equilibrium. Inclined plane. Windmill. Sailing. Screw, toothed and worm wheels, as treated by the principle of work. Efficiency of machines always reduced by friction.

*Hydrostatics.* Distinction between liquids and gases. Pressure at a point in a fluid. Equality of pressure at points on the same level. Change of pressure with depth. Surface of a liquid level. Transmission of pressure in liquid. Hydraulic press. Pressure against horizontal surfaces and vertical containing walls. Archimedes' principle. Density and specific gravity. Methods of finding specific gravities. Relation between volume and pressure in a gas. Air pumps. Atmospheric pressure. Barometers. Common pumps. Force pump.

*Dynamics.* Units of length and time. Velocity. Uniform acceleration. Use of formulæ connecting velocity, time and distance travelled with acceleration. Mass. Equal masses are those having equal acceleration under equal forces. Simple experiments to show that mass is proportional to weight at the same place. Constancy of mass under change of physical and chemical condition. Momentum and rate of change of momentum. Force measured by rate of change of momentum. Dyne and poundal. Momentum measure of force proportional to its weight measure. Relation between weight

measure and momentum measure. *g.* Atwood's machine. Momenta generated in two bodies by their mutual action, equal and opposite. Constancy of momentum. Kinetic energy and Work.

**(b) Chemistry.**

Gaseous, liquid, and solid states of matter.

Nature of chemical change. Elements, compounds, and mixtures.

Types of chemical action.

Solution, crystallisation, distillation, diffusion.

Chemical and physical properties of air and water.

Nature of acids, bases, and salts.

Nature, occurrence, chief modes of preparation, and principal properties of the following non-metallic elements and their more important compounds: Hydrogen, Oxygen, Carbon, Silicon, Sulphur, Nitrogen, Phosphorus, Fluorine, Chlorine, Bromine, and Iodine.

Combination by weight and volume. Symbols, equations, and calculations relating to weight and volume. Nomenclature.

Chemical and Physical characteristics of metals as illustrated by Sodium, Calcium, Iron, Zinc, Lead, Mercury, Copper, and Silver.

Candidates are required to show knowledge of a concrete and experimental character throughout.

**(c) Physiography.**

*The Earth* in its relation to the other bodies in the Solar System ; the form and size of the Globe ; its movements and their effects in day and night, the seasons, eclipses.

*The Surface of the Earth.* General distribution of land and water ; the contour, relief and chief features of the continental land areas.

*The Atmosphere.* Its composition and density ; the determination, distribution and representation of its temperature, and pressure ; the circulation

of the air, permanent and periodic winds, storms; the moisture of the air, dew, hoarfrost, fog, mist, clouds, rain, snow and hail; general distribution of rain-fall and its causes; weather-charts, and storm warnings, climate.

*The Sea.* Composition, specific gravity and temperature of sea-water; depths of the ocean, form and deposits of its floor; movements of the ocean water; waves, tides and currents.

*The Land.* The chief constituents of the earth-crust, stratified and unstratified rocks; the work of rain, frost, rivers and ice; springs, glaciers, valleys, waterfalls, lakes, meadows, deltas; earth-movement and earthquakes; volcanoes, their phenomena and distribution.

*Life.* The geographical distribution of animals and plants; biological regions.

(d) **Botany.**

*A. Plant Form as a key to Relationships.*

The Candidate is expected to have *practical* familiarity with

- (1) The chief characters of root, stem, bud, and leaf of the principal British plants of quite general distribution and of garden plants of general cultivation, and with the nature and structure, as determinable by eye or lens, of common bulbs, fruits, seeds, or other vegetable products in ordinary use, and universally met with in shop or market.
- (2) The most important floral and fruiting characters of the following British Natural Orders:—Ranunculaceæ, Cruciferae, Violaceæ, Caryophyllaceæ, Leguminosæ, Rosaceæ, Umbelliferæ, Compositæ, Primulaceæ, Scrophularineæ, Labiatae, Cupuliferæ, Liliaceæ.
- (3) To be able to describe concisely and in systematic fashion, flowering or fruiting specimens taken from (1) or (2) as above, the various



parts being known by their technical names, but otherwise more importance being attached to accuracy of observation than to the memory of technical terms.

*B. How Plants live, grow, and reproduce.*

- (4) The mode of development of the plant, the elementary facts of nutrition and respiration, the nature and function of root, stem and leaf, and their relations with external conditions and forces, to be determined *experimentally* by the aid of seedlings grown in the class-room from the following typical seeds or one-seeded fruits, viz., castor-oil *or* buck wheat, pea *or* bean, sunflower, mustard *or* cress, and maize, wheat *or* barley, and the bulb of hyacinth *or* onion.
- (5) The functions of the floral parts, their relations with pollination, the production and protection of seeds, and the provisions for seed-dispersal, especially as illustrated in the Natural Orders named above.

*(c) Animal Biology.*

- (a) Distinctive properties of living matter or protoplasm, as illustrated by the structure and mode of life of the *Proteus-animalcule* or *Amœba*. Differences between Animals and Plants. The nature of the Cell.
- (b) The general structure of the Frog. Elementary physiology of the Frog. The organs of digestion and their use. The nature of blood. The structure of the heart, and the arrangement of the more important blood vessels. The use of a circulatory system. The nature of excretory organs. Mode of breathing. The kidneys and their use.
- (c) The more important facts in the structure and habits of the freshwater Polype (*Hydra*); the Earthworm (*Lumbricus*); and the Crayfish (*Astacus*).

- (d) Methods of reproduction in animals. The egg-cell and the sperm-cell. Fertilization of the egg. Segmentation of the fertilized egg. The metamorphosis of the Frog, treated in an elementary fashion.
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A list of candidates who have passed the Examination will be published, arranged in two divisions, in each of which the names will be placed in alphabetical order.

A pass-certificate signed by the Registrar will be given to each successful candidate after the list is published.

Unsuccessful candidates will be informed of the subjects in which they have failed on application to the Registrar after the publication of the list.

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### ENTRANCE EXHIBITIONS.

Two Entrance Exhibitions, not exceeding in value the sum of £25 each, will be awarded on the results of the Matriculation Examination in June 1905, provided that a proper standard is reached by the candidates. Candidates for the Exhibitions must be under the age of nineteen years on the first day of the examination. The Exhibitions will be tenable at the University during the Session immediately following the Examination, provided that the exhibitor becomes a matriculated student of the University and attends courses leading to a degree, and will be paid solely in the form of remission of class fees.

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### SANDS-COX SCHOLARSHIP.

The Sands-Cox Scholarship, of the value of £42, is awarded to the Candidate amongst those entering as students of the Faculty of Medicine in the month of October, who shall have obtained the highest marks at the Matriculation Examination in the previous month of June, provided that

- (a) No Candidate shall be elected whose age exceeds nineteen on the first day of the examination.

- (b) No Candidate shall be elected who shall not have attained to a position in the first class, and satisfied the Examiners that he has shown sufficient merit for the award.
  - (c) The payment shall be made in two annual instalments, and in the form of remission of fees.
  - (d) The second instalment shall not be paid until the scholar presents a certificate from the Dean, showing that his first year's work has been satisfactory.
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### **THEODORE MANDER SCHOLARSHIP.**

A fund raised by private subscription organised by the Citizens of Wolverhampton to establish a memorial of the late Mr. Samuel Theodore Mander, Mayor of Wolverhampton, has been devoted to the foundation of a Theodore Mander Scholarship. The Scholarship, of the value of about £24 per annum, is open to sons and daughters of burgesses of Wolverhampton, and is tenable at the University of Birmingham. The Scholarship is awarded upon the results of the June Matriculation Examination, and preference will be given to candidates desirous of attending courses in connexion with or preparatory to Degrees in Science or Commerce. The Scholarship is tenable for two or three years, according to the length of time necessary to obtain a degree in the Faculty chosen. Forms of entry may be obtained from the Registrar of the University, and should be received duly filled up on or before May 15th.

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### **POLYTECHNIC BURSARIES.**

Two Bursaries, of the approximate annual value of £45 each for three years, will be awarded on the result of the Matriculation Examination in June, 1906, to candidates who have for a period of five years resided in the city of Birmingham or any of the following parishes, viz., Yardley, Castle Bromwich, Erdington,

Aston Manor, Handsworth, Smethwick, Halesowen, Northfield, King's Norton, and the incomes of whose parents (if alive) do not together exceed the sum of £150 per annum, or who if their parents or either of them be deceased are in receipt of an income of not more than 15s. a week. Candidates are required to satisfy the Standing Committee appointed by the Founders that they belong to the class of persons for whom the Scholarships were intended. Forms of application may be obtained from Mr. Arthur Eades, Secretary of the Birmingham Trades Council, Ombersley Road, Birmingham, and must be returned to him on or before May 2nd.

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### **ANNIE DEAKIN PRIZE.**

The "Annie Deakin Prize" founded in memory of the late Miss Annie Deakin, of Handsworth, by friends and former pupils of her School, of the value of about £1 5s. is awarded annually to the woman who passes the June Matriculation Examination with the highest distinction among those candidates who declare their intention of becoming teachers in Secondary Schools.

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### **RECOGNITION OF THE MATRICULATION EXAMINATION BY OTHER INSTITUTIONS.**

The Matriculation Examination of the University of Birmingham is recognised by the following Institutions in lieu of their own preliminary examination:—

Incorporated Law Society (provided that Latin is one of the subjects of examination).

Institute of Chartered Accountants.

Board of Education, for admission to Training Colleges.

General Medical Council, for Registration of Medical and Dental Students.

Institute of Chemistry.

The Engineering Matriculation Certificate is accepted by the Institution of Civil Engineers as exempting from their Studentship Examination.

## SCHEDULE OF EXAMINATIONS

*accepted in lieu of the Matriculation Examination.*

1. The Previous Examination of the University of Cambridge.
2. Responsions of the University of Oxford.
3. The Preliminary or Matriculation Examination of any recognised University.
4. The Higher Certificate of the Oxford and Cambridge Examinations Board.
5. The Oxford or Cambridge Senior Local Examination.
6. The Oxford or Cambridge Junior Local Examination with First or Second Class Honours, or with Distinctions in two subjects, which may be either languages or mathematics.

Provided that Candidates who offer Examinations 3, 4, 5 and 6 have passed in all the subjects required by the Regulations for matriculation in a Faculty at one examination.

In the Faculty of Medicine, the College of Preceptors Examination for First Class Certificates, as well as all the examinations in the foregoing list are accepted as qualifying for matriculation, provided that such examination shall have included the subjects of English, Latin, Mathematics, and one of the following: Greek, French, German or any other modern foreign language, and that the candidate has passed in all these subjects at one examination.

In the Faculties of Science, Arts and Commerce the Oxford and Cambridge Higher Local Examinations in any subject will exempt candidates from further examination in that subject in the Matriculation Examination. A written statement from the Secretary of the Oxford Delegacy or the Cambridge Syndicate certifying that the candidate has passed the examination in that subject must be presented.

**UNIVERSITY EXHIBITIONS, SCHOLARSHIPS, &c.**

(See also pages 351, and 403-405).

**UNIVERSITY EXHIBITIONS.**

Two exhibitions, not exceeding in value the sum of £30, tenable for one year, are awarded on the results of the Intermediate Examinations in Science and Arts on the nomination of the Faculties concerned. The exhibitions are tenable during the University Session immediately following the examinations, and will be paid solely in the form of remission of fees.

The exhibition in the Faculty of Science may be renewed for a second year upon receipt of reports of satisfactory progress. An exhibition held by a student in Engineering may be renewed for a third year, on the recommendation of the Faculty of Science.

In the Faculty of Arts, an exhibition tenable during the student's third year will be awarded on the result of the Second Year Arts Examination.

**UNIVERSITY SCHOLARSHIPS.**

About four University Scholarships of the value of £50 a year, tenable for one year after graduation, may be awarded on the nomination of the Faculties of Science and Arts. These scholarships will carry with them free admission to lectures and laboratories in preparation for the Master's Degree.

**Research Scholarships.**

In addition to the Priestley and Bowen Research Scholarships, about four Research Scholarships of the value of £50 a year, tenable for one year, may be awarded on the nomination of the Faculties of Science and Arts. The scholarships will carry with them free admission to the Library and Laboratories of the University for the purposes of research. They will be held subject to the progress and good conduct of the holders, at the discretion of the Faculty concerned.

*Applications should be sent to the Registrar on or before the 1st of June.*

**Bowen Scholarships in Engineering.**

*(Founded by the late T. Aubrey Bowen, of Melbourne.)*

Two Scholarships of the value of about £96 each,

tenable for one year (except as hereafter mentioned), are awarded annually.

The objects of these scholarships are to encourage research in the scientific portions of engineering. The scholarships will be held under the condition that the holder devotes his whole time to research as a student in the University of Birmingham.

Candidates must have spent three years in the Engineering Department of a University College; preference will be given to candidates who hold an engineering degree.

In each year two scholarships will be offered tenable for one year, but in special cases where the scholar has shown considerable capacity for research work, the scholarship may be extended for a further year. The scholarships will be paid in three instalments, and in the event of a scholar's attendance, diligence, or progress being at any time unsatisfactory, the subsequent instalments may be withheld.

The University Fee payable by Bowen Scholars will be £30 for the year, payable in three sums of £10 each, this sum to include the use of the ordinary apparatus and materials, as well as the purchase of such special apparatus and materials as the Professor shall consider desirable.

*Applications, supported by details of educational training and references to former teachers and others, should be sent to the Registrar on or before the 1st of June.*

### **Priestley Scholarships in Chemistry,**

*(Founded by the late T. Aubrey Bowen, of Melbourne.)*

Three Scholarships of the value of about £96 each, tenable for one year (except as hereafter mentioned), are awarded annually.

The object of these scholarships is to encourage and afford greater facilities for the higher study of chemical science at the University. As far as possible this higher study will take the form of original experimental or theoretical investigation in some branch of Chemistry, pure or applied, to be carried on in the Laboratories of the University, under the direction of the Professor of Chemistry.

In the selection of candidates for these scholarships, preference will naturally be given to present or past students of the University, although outside candidates bearing the necessary credentials will also be eligible. As a general rule only such candidates as have passed through an approved three years' course of study in chemistry and the allied sciences will be accepted.

Under ordinary circumstances the scholarships will be tenable for one year, but the power is reserved of renominating for a second or third year in the event of such a course being considered desirable as tending to promote the object which the foundation of these scholarships has in view.

Priestley Scholars will be regarded as ordinary students of the University, and must conform to all the general rules of the University as well as to the special ordinances of the Chemical Department. The scholarships will be paid in three instalments, and in the event of a scholar's attendance, diligence, or progress being at any time unsatisfactory, the subsequent instalments may be withheld.

The University Fee payable by Priestley Scholars will be £30 for the year, payable in three sums of £10 each, this sum to include the use of the ordinary apparatus and chemicals, as well as the purchase of such special apparatus and chemicals as the Professor shall consider desirable.

At the close of his year's tenure of the scholarship, or at any time previous thereto that the Professor may think fit, a scholar shall present the results of his work in the form of a thesis, the arrangements for the publication of which shall be left to the discretion of the University authorities.

*Applications, supported by details of educational training and references to former teachers and others, should be sent to the Registrar on or before the 1st of June.*

### **Bowen Scholarship in Metallurgy**

*(Founded by the late T. Aubrey Bowen, of Melbourne.)*

A Scholarship of the value of about £96, tenable for one year, is awarded annually.



This scholarship will be held on precisely similar terms to those laid down above for chemistry, the work engaged on by the scholar having a direct or theoretical bearing on some department of metallurgy. As the prosecution of this work may from time to time entail the visiting of works for the purpose either of personal observation or actual experiment, the Professor will be empowered to authorize the expense of such visits being either wholly or in part defrayed out of the above-mentioned fee paid by the scholar.

*Applications, supported by details of educational training and references to former teachers and others, should be sent to the Registrar on or before the 1st of June.*

### The Corbett Scholarship.

*(Founded by the late John Corbett, of Impney, Droitwich.)*

The Corbett Scholarship, of the value of about £28 a year, payable in the form of remission of fees, is tenable for one year, and is awarded to the student who is recommended to the Senate as the most promising and distinguished student in Mathematics at the end of his or her second year after registration.

### Heslop Memorial Scholarship.

At a Public Meeting held at the Council House, Birmingham, on Friday, the 3rd of July, 1885, the following resolutions were unanimously passed:—

“That it is desirable to commemorate in some permanent form the long and valuable services rendered to the town of Birmingham, and especially to its Charitable and Educational Institutions, by the late Dr. HESLOR, and thus to place on record the public estimation of his character and labours.”

“That for the purpose mentioned in the previous resolution a subscription list be now opened, and that such subscriptions to the amount of £1,000 be applied to the formation of a Scholarship at the Mason College, tenable by pupils from the Schools on the Foundation of King Edward VI.”

The subscriptions obtained for the purpose of the foregoing resolutions, after deducting costs of advertising, &c., amounted to £755 19s. 0d., and the income arising therefrom (about £25 per annum) provides a Heslop Memorial Scholarship, which is awarded upon the following conditions :—

1. The Scholarship is open to all pupils who have been pupils in any of the Schools on King Edward's Foundation for not less than *two* years immediately preceding ;
2. It is tenable for *two* years at the University ;
3. It is awarded by the University on the result of a special examination ;
4. It is not tenable together with any other Exhibition or Scholarship awarded at the same examination ;
5. It is paid solely in the form of remission of class fees.

#### Scholarships for holders of Birmingham Education Committee Scholarships.

The University annually awards free Scholarships to the Students entering the University as holders of Scholarships given by the Birmingham Education Committee, by remitting all fees for instruction.

The Scholarships are tenable at the University for *three* years, and at King Edward's School or the Technical School for such preceding period as may be necessary to fit the scholars to enter the University. The scholars must obtain from the Vice-Principal a written approval of the course of study they intend to pursue. The continuance of the Scholarships is at all times subject to satisfactory reports as to the fulfilment of the conditions under which they are held.

#### Science Research Scholarship Awarded by the Royal Commissioners for the Exhibition of 1851.

The Royal Commissioners for the Exhibition of 1851 annually place at the disposal of the University the nomination to a Science Scholarship of the value of £150

a year, tenable for two years, the continuation for the second year being dependent on the work done in the first year being satisfactory to the Scientific Committee appointed by the Commissioners. The student nominated must have studied in the University for three years at least, and must undertake to devote himself to scientific research or the application of scientific knowledge to industries. The scholarship may be held at any University at home or abroad, or in some other properly equipped institution to be approved of by the Commissioners. The nomination of candidates by the University is subject to revision by the Commissioners, and the privilege of nomination may be withheld by them at any time.

*Applications should be made to the Registrar on or before the 1st of January.*

### Harding Scholarships in German.

*(Given by Mr. and Mrs. Charles Harding.)*

Four Scholarships of the annual value of £50, each tenable during three years by students of German in the School of Modern Languages, may be awarded by the Faculty of Arts on the nomination of the Professor of German, two in the year of 1904 and two in 1905.

At the close of the third year further Travelling Scholarships of £100 each for one year may be awarded to these scholars, provided that they have taken the B.A. degree in the School of Modern Languages and that their work and conduct for the previous three years have been satisfactory. The Travelling Scholarship will be tenable at a German University to be approved by the Faculty of Arts.

These Scholarships are offered with the intention of inducing students of marked aptitude for linguistic and literary studies to devote themselves to a special course of study with a view to becoming teachers of modern languages in secondary schools in England. They will be continued only so long as the progress and conduct of the holders are satisfactory to the Faculty.

## PRIZES.

## The Karl Dammann Memorial Prize.

The "KARL DAMMANN MEMORIAL PRIZE," of the value of about £5, founded by a friend of the late Dr. Karl Dammann, the first Professor of German Language and Literature in Mason College, is awarded annually to the best student in an examination in German Literature. The prize is given in the form of works in the German language.

The candidates must write an Essay in German upon a Literary Subject, to be announced by the Professor at an early date in each Session, and must pass an examination which will comprise a paper on the special period of German Literature taken by the Professor in the preceding Session, and a *vivâ-voce* examination, in which the candidates will have to translate at sight from some of the authors and answer questions relating to them.

## Ehrhardt Prize.

A prize of £5 provided by Dr. E. F. Ehrhardt is awarded annually on the recommendation of the Professor of Chemistry for a piece of research work conducted in the Chemical Laboratory.

## The Panton Geological Prize.

The "PANTON PRIZE," of the value of Two Guineas—founded by Mrs. Panton in memory of her husband, the late G. A. Panton, Esq., F.R.S.E.—is awarded to the best student in the class of Local Geology; the prize being given upon the result of a competitive examination upon the Geology of the neighbourhood of Birmingham, or as a reward for a special thesis upon the Geology of the Birmingham District.

## Bunce Prize.

The "BUNCE PRIZE," of the value of about £3, founded by the late J. Thackray Bunce, is awarded annually on the result of a special examination held in the month of June.

Subjects of Examination for June, 1905 :—

- (a) The Works of Shakspeare.
- (b) Shaksperian Criticism.

Candidates should send in their names to the Registrar on or before June 1st.

#### Gladstone Memorial Prize.

The Committee of the Gladstone Memorial Fund offers annually to students of the University a prize of Books, of the value of £5, for an Essay on a subject connected with History, Political Science, or Economics.

Candidates are recommended to consult the Professors of History and Commerce as to the proposed subject for the essay.

The exercises should be sent in to the Registrar on or before June 1st.

#### Austin Prize.

A prize of the value of about £2, founded in memory of the late Mr. W. H. Austin, M.A., Lecturer in Mathematics, is awarded annually to the student of the highest merit in Pure Mathematics at the Examination for the B.Sc. or B.A. degree.

### GOLD MEDALS.

#### The Heslop Memorial Medal.

The "HESLOP GOLD MEDAL," provided out of the proceeds of a bequest to the College by the late Thomas Pretious Heslop, M.D., is awarded annually by the University, on the recommendation of the Senate, for the best Dissertation or Essay upon a subject to be selected by the candidate. The Medal is open to all past and present students of not less than two years' standing.

The subjects are arranged in the following divisions :—

- a. Language, Literature, and Philosophy.
- b. Mathematical and Physical Science, including Metallurgy and Engineering.
- c. Biological and Geological Science, including Mining.

The award will be in division *a* for 1905, *b* for 1906, and *c* for 1907.

Candidates are at liberty to select any subject under the above headings, and are advised to consult their Professors in making their choice.

The essays must be sent in to the Registrar under a motto, not later than the 30th of April, accompanied by a sealed envelope, with the motto outside, containing the name of the candidate. The exercise should not be in the handwriting of the candidate.

If in any year the Medal be not awarded it may be offered again in the following year in the same group of subjects, in addition to the Medal naturally offered for that year in another group, and so on until the completion of the cycle of subjects.

#### The Constance Naden Medal.

The "CONSTANCE NADEN GOLD MEDAL," founded by Surgeon Lieut.-Colonel R. Lewins, M.D., in memory of the late Miss Constance Caroline Woodhill Naden, is awarded annually by the University, on the recommendation of the Senate, for the best exercise under one of the following headings:—

- a.* An English Poem.
- b.* A dissertation on a literary subject.
- c.* A dissertation on any subject relating to mental and moral science.
- d.* An examination of any of the fundamental principles or axioms of science, with their bearings upon modern thought.

The competition for the medal is open to all present or past students of the University, who have attended systematic courses during two sessions.

The exercises must be sent in to the Registrar, under a motto, not later than the 30th of April, accompanied by a sealed envelope, bearing the motto, and containing the name of the candidate. The exercise should not be in the handwriting of the candidate.

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## GOVERNMENT AID TOWARDS THE INSTRUCTION OF SCIENCE TEACHERS.

In accordance with a minute adopted by the Right Honourable the Lords of the Committee of Her Majesty's Most Honourable Privy Council on Education, June, 1881 (Science Form, No. 1,126), their Lordships are prepared to pay three-fourths of the fees for courses of laboratory instruction, as stated below, for a limited number of Teachers engaged in Science Teaching, on condition that satisfactory reports of their progress (to be ascertained by examination), and of their conduct, be received at the end of the Winter, Spring, and Summer Terms.

Applications for this privilege must be made to the Secretary, Board of Education, South Kensington, London, S.W., not later than the 31st August.

The selection of the applicants will rest with the Board of Education.

The fees for two days a week for the Session, from October to June, are :—

|                                           |   |    |    |
|-------------------------------------------|---|----|----|
| *For the Chemical or Metallurgical        | £ | s. | d. |
| Laboratories                   ...    ... | 9 | 9  | 0  |
| *For the Physical Laboratory ...    ...   | 9 | 9  | 0  |
| *For the Biological Laboratories..   ...  | 7 | 7  | 0  |

NOTE.—One-fourth of the fee for the whole Session must be paid by the student on entrance, under the usual conditions of the University. The remaining three-fourths of the fee will be paid by the Board of Education, in equal instalments, at the commencement of each term subject, however, to the right of the Board to withhold payment of the second and third instalments should the reports not be satisfactory.

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\* Including such of the Lectures as the Teachers are able and willing to attend.

## FACULTY OF SCIENCE.

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### REGULATIONS FOR DEGREES IN THE FACULTY OF SCIENCE.

No degree can be obtained without attendance upon certain prescribed courses of study in the University, extending over a period of at least three sessions after matriculation, and no attendance upon lectures in the University prior to matriculation will be accepted as any part of the qualification necessary for a degree without special leave from the Senate. The work of candidates is estimated partly by means of periodical exercises and class examinations and inspection of laboratory notebooks throughout the session, and partly by means of examinations at the end of the session, and the same total of marks is assigned to each of these portions of the student's work. At the end of each session each undergraduate is required to present a certificate of qualification, stating that he has attended to the satisfaction of the Professors concerned not less than two-thirds of the lectures and practical classes, and that he has passed such class examinations and performed such other exercises as his teachers may prescribe in connexion with their own courses, to the satisfaction of the Faculty, before being admitted to the sessional examination.

#### B.Sc. DEGREE IN PURE SCIENCE.

Candidates for the Bachelor's Degree in Pure Science are required to have spent at least three sessions in attendance on courses of study in the University after matriculation in the Faculty and to pass two University Examinations, the *Intermediate* and the *Final*, in addition to the class examinations held by the Professors in connexion with the courses of study. Candidates are further required to pass the papers in French and German set at a Matriculation Examination either at entrance or



at a subsequent examination, before being admitted to the Degree.

#### FIRST YEAR COURSES.

After matriculation in the Faculty, candidates are required to attend courses of study for at least one session in four of the following subjects:—

- (i.) Pure Mathematics.
- (ii ) Physics.
- (iii.) Chemistry.
- (iv.) Elementary Biology.
- (v.) Theory and Practice of Education. (See Faculty of Arts.)

Candidates after presenting to the Registrar the necessary schedules of qualification in two or more of the four subjects will be admitted to the Intermediate Examination in those subjects.

Two printed examination papers will be set in each of the five subjects of examination, and there will be a practical examination in Physics, Chemistry, and Elementary Biology. Examiners will not be precluded from holding a *circa voce* examination in any subject if they think fit.

There will be a supplementary examination in September, and candidates who have taken and passed in two or more of their subjects may complete the examination in September. Candidates who have failed in any of the subjects in June may be allowed by the Board of Examiners to sit for the examination again in September, or may be required to attend a further course in that subject before being admitted to a subsequent examination.

COMPOSITION FEE for First Year Courses: £28 7s.

#### SECOND AND THIRD YEARS' COURSES.

After passing the Intermediate Examination candidates are required to take University Courses in one principal subject and two subsidiary subjects, or in two principal subjects, under the following groups:—

*Principal Subjects* :—Mathematics (Pure and Applied), Physics, Chemistry, Geology, Zoology, Botany, Physiology, Anatomy and Anthropology, Psychology, Biology and Chemistry of Fermentation (together with Chemistry as a double subsidiary subject).

*Subsidiary Subjects* :—Pure Mathematics, Applied Mathematics, Elementary Pure Mathematics together with Elementary Applied Mathematics, Physics, Chemistry, Geology, Botany, Zoology, Physiology, Psychology, Metallurgy, Mining, Theory and Practice of Education. (See Faculty of Arts.)

*Double Subsidiary Subjects* (each counting as two):—Physics, Chemistry, Geology, Botany, Zoology, Physiology, Anatomy and Anthropology, Psychology.

The principal subjects must be studied for two years, while subsidiary subjects need in general only be studied for one year; but Subsidiary Mathematics extends over two years. By the selection of a double subsidiary subject, a student is enabled to continue the study of a subsidiary subject for a second year, instead of choosing a fresh subsidiary subject.

Candidates, after presenting to the Registrar the necessary schedules of qualification in the selected subjects, will then be admitted to the Final Examination. The examination in principal subjects will be of a higher standard and will cover a wider range than the examination in subsidiary subjects.

The examination in a subsidiary subject studied during the year following the completion of the Intermediate Examination may be taken at the conclusion of the course.

The examination will be conducted by printed papers and also by tests of practical work; but the Examiners will not be precluded from holding a *viva voce* examination in any subject, if they think it desirable.

The B.Sc. class lists will be published in three divisions, the first of which will be called Honours, and will contain the names of those candidates who distinguish themselves in their principal subject.

Candidates who have failed in any of the subjects offered for examination may be required by the Faculty to attend a further course of study in that subject before being admitted to a subsequent examination.

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## B.Sc. IN APPLIED SCIENCE.

### (i.) ENGINEERING.

Candidates may obtain the Degree of Bachelor of Science in any of the three branches of Engineering, viz. : (a) Civil Engineering, (b) Mechanical Engineering, (c) Electrical Engineering, after attendance on prescribed courses of study in the University extending over a period of at least four years after matriculation.

The prescribed courses for the first year are the same for all candidates. At the end of each Session there will be a University Examination on the prescribed courses of study, which candidates are required to pass. In the examinations at the end of the first and second years of study, candidates who pass in two subjects will be allowed to offer the third subject at a subsequent examination; but no candidate will be allowed to proceed to the next year's courses of study unless he passes the examination in the Engineering subjects.

### (ii.) METALLURGY AND MINING.

Candidates who wish to make Metallurgy or Mining their chief study are allowed to offer applied sciences, such as Geology, Engineering, Metallurgy, and Mining, for their first year courses of study, instead of Elementary Biology or Theory and Practice of Education; but the general regulations for the Bachelor's Degree are similar to those for the Degree in Pure Science. Full particulars of the courses of study, extending over at least three sessions, may be found under the subjects Metallurgy and Mining.

## M.Sc. DEGREE.

Bachelors of Science may be admitted to the degree of Master of Science after a further course of study extending over not less than one academic year.\* Candidates are required either—

- (i.) To present a thesis and, if the Examiners think it desirable, to pass a *viva voce* examination; or—
- (ii.) To pass an examination, both written and practical.

## D.Sc. DEGREE.

Candidates may be admitted to the degree of Doctor of Science, after the expiration of at least two academic years after qualifying for the B.Sc. degree, on the presentation and approval of a printed and published thesis embodying the results of original research, or contributing generally to the advancement of Science.

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### ADMISSION OF GRADUATES FROM OTHER UNIVERSITIES.

Graduates or persons who have passed degree examinations of other Universities, who present evidence satisfactory to the Faculty of Science that they are qualified to pursue a course of advanced study or research are allowed to enter the University and to become candidates for the degree of Master of Science (without taking the Bachelor's degree) after two years of regular study or research, provided that they satisfy the Faculty at the end of their first year that their work is satisfactory. Persons who take the Master's degree under this regulation will be allowed to become candidates for the Doctor's degree at any time after one year from the attainment of the Master's degree, without further attendance at the University.

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In ordinary cases, the year of study must be spent at the University of Birmingham; but candidates desirous of pursuing some special line of study at some other place may receive permission to do so on the recommendation of the Faculty.

## FEES FOR EXAMINATIONS AND DEGREES.

## FACULTY OF SCIENCE.

|                                                 |     | £  | s. | d. |
|-------------------------------------------------|-----|----|----|----|
| (i.) Intermediate Examination ...               | ... | 2  | 0  | 0  |
| (ii.) Final Bachelor's Examination              |     |    |    |    |
| Subsidiary Subjects...                          | ... | 2  | 0  | 0  |
| Principal Subjects ...                          | ... | 2  | 0  | 0  |
| (iii.) First Engineering Examination ...        | ... | 2  | 0  | 0  |
| (iv.) Second Engineering Examination ...        | ... | 2  | 0  | 0  |
| (v.) Third Engineering Examination ...          | ... | 2  | 0  | 0  |
| (vi.) Fourth Engineering Examination ...        | ... | 2  | 0  | 0  |
| (vii.) Admission to B.Sc. Degree...             | ... | 2  | 0  | 0  |
| (viii.) M.Sc.           ...       ...       ... | ... | 5  | 0  | 0  |
| (ix.) D.Sc.           ...       ...       ...   | ... | 10 | 0  | 0  |

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## TIME TABLE OF PRELIMINARY CLASSES.

| SUBJECT.                                     | Mon.  | Tues. | Wed. | Thurs. | Fri.  |
|----------------------------------------------|-------|-------|------|--------|-------|
| Mathematics .....                            | 10.30 | 10.30 | ...  | 10.30  | 10.30 |
| Chemistry (Winter & Spring)                  | ..    | 11.30 | ...  | 11.30  | ...   |
| Physiography<br>(Matriculation) }            | ...   | 3.30  | ...  | 3.30   | ...   |
| Physiography (Advanced)...                   | 3.30  | 9.30  | ...  | ...    | ...   |
| Botany (Winter & Spring)...                  | ...   | ...   | ...  | 11.30  | ..    |
| Botany (Summer).....                         | ...   | 11.30 | ...  | 11.30  | ...   |
| *Animal Biology .....                        | ...   | ...   | ...  | ...    | ...   |
| Geography (First Year) . . .                 | ...   | 3.30  | ...  | 3.30   | ...   |
| Geography (Second Year)....                  | 3.30  | 9.30  | ...  | ...    | ...   |
| Geology (Winter & Spring)                    | ...   | ...   | ...  | 2.30   | ...   |
| Geology (Advanced)<br>Winter and Spring }    | ...   | ...   | ...  | 3.30   | ...   |
| Local Geology (Summer) ...                   | ...   | ...   | ...  | 2.30   | ...   |
| Latin A and B.....                           | ...   | 4.30  | ...  | 4.30   | 4.30  |
| Greek .....                                  | 2.30  | ...   | ...  | 2.30   | 2.30  |
| English Literature... ..                     | 9.30  | ...   | 9.30 | ...    | ...   |
| English History.....                         | ...   | 9.30  | ...  | 9.30   | ...   |
| English Composition<br>(Winter and Spring) } | ...   | 2.30  | ...  | ...    | ...   |
| French .. ..                                 | 3.30  | 4.30  | ...  | 2.30   | 3.30  |
| German.....                                  | 2.30  | ...   | ...  | 2.30   | 2.30  |

\* Saturdays at 11.30 a.m.

## TIME TABLE

*First Year Courses.*

| SUBJECT.                     | Course | Mon.                   | Tues.  | Wed.  | Thurs.  | Fri.  |
|------------------------------|--------|------------------------|--------|-------|---------|-------|
| Pure Mathematics ...         | I.     | 12.30                  | 11.30  | ...   | 11.30   | 12.30 |
| Physics ...                  | I.     | 11.30                  | ...    | 11.30 | ...     | 11.30 |
| " (Practical) ...            | ...    | 2.30                   | or     | 2.30  | or      | 2.30  |
| Chemistry<br>(Win. & Spring) | I.     | 9.30                   | 9.30   | 9.30  | 9.30    | ...   |
| " (Summer) ...               | ...    | 9.30                   | ...    | 9.30  | ...     | 9.30  |
| Zoology ...                  | I.     | ..                     | 12.30  | ...   | 12.30   | ...   |
| " (Practical) ...            | ...    | ...                    | 2-4.30 | ...   | 2-4.30† | ...   |
| Botany ...                   | I.     | 4.0                    | ...    | ...   | ..      | 4.0*  |
| " (Practical)...             | ...    | <i>By arrangement.</i> |        |       |         |       |
| Metallurgy ...               | I.     | 4.0*                   | ...    | ...   | ...     | ...   |
| " (Practical)...             | ...    | ..                     | 2-5†   | ...   | ...     | ...   |
| Education ...                | I.     | ...                    | 10.30  | 9.30‡ | ...     | 10.30 |
| "                            | II.    | <i>By arrangement.</i> |        |       |         |       |

\* During Winter and Spring Terms only.

† Summer Term only.

‡ Spring and Summer Terms.

COMPOSITION FEE :—£28 7s.

## TIME TABLE

*Second and Third Year Courses.*

| SUBJECT.             | Course                                                   | Mon.                                                 | Tues.                  | Wed.  | Thurs. | Fri.  | Sat.  |
|----------------------|----------------------------------------------------------|------------------------------------------------------|------------------------|-------|--------|-------|-------|
| Pure Mathematics ... | II.                                                      | 10.30                                                | ...                    | 10.30 | ...    | 10.30 | ...   |
| " " ...              | III.                                                     | 9.30                                                 | ...                    | 9.30  | ...    | 9.30  | ...   |
| " " ...              | IV.                                                      | 9.30                                                 | ..                     | 9.30  | ...    | 9.30  | ...   |
| Applied Mathematics  | I. $\left\{ \begin{array}{l} A \\ B \end{array} \right.$ | 9.30                                                 | ...                    | 9.30  | ...    | 9.30  | ...   |
| " " ...              | II.                                                      | 10.30                                                | ...                    | 10.30 | ...    | 10.30 | ...   |
| Physics ...          | II.                                                      | 11.30                                                | ...                    | 11.30 | ...    | 11.30 | ...   |
| " (Practical) ...    | ...                                                      | <i>By arrangement.</i>                               |                        |       |        |       |       |
| " ...                | III.                                                     | 10.30                                                | ...                    | 10.30 | ...    | 10.30 | ...   |
| Chemistry ...        | II.                                                      | $\left. \begin{array}{l} \\ \\ \end{array} \right\}$ | <i>By arrangement.</i> |       |        |       |       |
| " ...                | III.                                                     |                                                      |                        |       |        |       |       |
| " (Practical) ...    | ...                                                      |                                                      |                        |       |        |       |       |
| Zoology ...          | II.                                                      | 12.30                                                | 12.30                  | 12.30 | ...    | 12.30 | ...   |
| " ...                | III.                                                     | $\left. \begin{array}{l} \\ \end{array} \right\}$    | <i>By arrangement.</i> |       |        |       |       |
| " (Practical) ...    | ...                                                      |                                                      |                        |       |        |       |       |
| Botany ...           | II.                                                      | 11.30                                                | 11.30                  | ...   | 11.30  | 11.30 | ...   |
| " ...                | III.                                                     | $\left. \begin{array}{l} \\ \end{array} \right\}$    | <i>By arrangement.</i> |       |        |       |       |
| " (Practical) ...    | ...                                                      |                                                      |                        |       |        |       |       |
| Geology (Win. & Sp.) | I.                                                       | ...                                                  | 9.30                   | ...   | 9.30   | ...   | 9.30  |
| " (Excursions)       | ...                                                      | <i>Saturdays in the Summer.</i>                      |                        |       |        |       |       |
| " (Practical) ...    | ...                                                      | ...                                                  | 10.30                  | ...   | 10.30  | ...   | 10.30 |
| " ...                | II.                                                      | 10.30                                                | ...                    | 10.30 | ...    | 10.30 | ...   |
| " (Practical) ...    | ...                                                      | 11.30                                                | ...                    | 11.30 | ...    | 11.30 | ...   |
| " (Field Work)       | ...                                                      | <i>Fridays in the Summer.</i>                        |                        |       |        |       |       |
| " ...                | III.                                                     | <i>By arrangement.</i>                               |                        |       |        |       |       |
| Anatomy ...          | ...                                                      | <i>See Medical Syllabus.</i>                         |                        |       |        |       |       |
| Anthropology ...     | ...                                                      | <i>By arrangement.</i>                               |                        |       |        |       |       |
| Physiology ...       | ...                                                      | <i>See Medical Syllabus.</i>                         |                        |       |        |       |       |
| " Advanced           | ...                                                      | 2.30                                                 | ...                    | ...   | ...    | 2.30  | ...   |
| Metallurgy ...       | II.                                                      | 11.30                                                | ...                    | 11.30 | ...    | ...   | ...   |
| " ...                | III.                                                     | <i>By arrangement.</i>                               |                        |       |        |       |       |
| Education ...        | III.                                                     | <i>By arrangement.</i>                               |                        |       |        |       |       |



# FACULTY OF SCIENCE.

## Syllabuses of Courses.

### MATHEMATICS.

*Professor*: R. S. HEATH, M.Sc.; M.A. (Cantab.),  
D.Sc. (Lond.), late Fellow of Trinity College, Cambridge.

*Lecturer*: C. T. PREECE, B.A. (Cantab.), Scholar of  
Trinity College, Cambridge.

*Assistant Lecturer*: (*Vacant*)

### PURE MATHEMATICS.

#### PRELIMINARY COURSE.

Mondays, Tuesdays, Thursdays, and Fridays, from  
10.30 to 11.30.

**FEE**:—£4 4s.

**ARITHMETIC**.—The ordinary rules, vulgar and decimal fractions, methods of manipulation of decimals in approximations, square root, proportion, interest, discount, stocks.

**ALGEBRA**.—Addition, subtraction, multiplication and division; simple equations; fractions; highest common factor, lowest common multiple; quadratic equations; solutions of two simultaneous equations, one at least being linear; simple graphs; problems requiring the classes of equations specified; simple questions on fractional indices; the nature and simple properties of logarithms to the base 10, with easy applications of four-figure tables; ratio and proportion; arithmetic progression, finite geometric progressions.

**GEOMETRY**.—Practical and theoretical geometry, according to the schedules required for the Matriculation Examination.

### UNIVERSITY COURSES.

#### I.

Mondays and Fridays, from 12.30 to 1.30.

Tuesdays and Thursdays, from 11.30 to 12.30.

**FEE**:—£4 4s.

ALGEBRA.—Elementary properties of surds and imaginaries; simultaneous quadratics and equations like quadratics; theory of indices; theory and practical applications of logarithms; permutations and combinations; arithmetical and geometrical progressions, and other simple series; the binomial theorem for a positive integral exponent.

TRIGONOMETRY.—Trigonometrical ratios of acute angles; solution of right-angled triangles, and simple problems of heights and distances; circular measure of angles; length of arcs of circles; angles of any magnitude and sign; trigonometrical ratios of obtuse angles; sine, cosine, and tangent of the sum and difference of angles; formulae for the ratios of the double angle, triple angle, and the half angle; transformation of sums and differences of sines and cosines into products, and vice-versâ; properties of triangles; solution of triangles; problems on heights and distances; the chief circles related to a triangle; regular polygons; areas of circles, sectors, and segments.

GEOMETRY.—The substance of Euclid, Books VI. and XI, 1—21, together with properties, areas of surface, and volumes of polyhedra, cylinders, cones, and spheres; elementary theory of projection and perspective.

## II.

Mondays, Wednesdays, and Fridays, from 10.30 to 11.30.

FEE:—£4 4s.

ALGEBRA.—Theory of quadratic functions and quadratic fractions, their graphs and maxima and minima values; the remainder and factor theorems of rational functions; theory of rational and partial fractions; the convergence and properties of the binomial, exponential and logarithmic series.

TRIGONOMETRY.—Inverse notation; graphs of the trigonometrical functions; theory of complex quantities; Argand's diagram and de Moivre's theorem; series for sine and cosine and calculation of tables; exponential forms of sine and cosine; hyperbolic functions; Gregorie's series; calculation of  $\pi$ .

GEOMETRY.—The elementary properties of conic sections.

DIFFERENTIAL CALCULUS.—Methods of differentiation; Taylor's and Maclaurin's theorems; theory of maxima and minima.

INTEGRAL CALCULUS.—Methods of integration; calculation of curve lengths, areas and volumes by single integration.

III.

Mondays, Wednesdays, and Fridays, from 9.30 to 10.30.

FEE:—£4 4s.

ANALYTICAL GEOMETRY up to the elementary properties of the conic sections.

DIFFERENTIAL CALCULUS.—Tangents, normals, asymptotes, singularities of curves; tracing of curves; properties of special curves (including sine-curve, logarithmic curve, cycloids and catenary).

INTEGRAL CALCULUS.—Formulae of reduction; differentiation and integration of an integral with regard to constants; properties of special curves; double and triple integration.

DIFFERENTIAL EQUATIONS.—Standard forms; singular solutions; linear and homogeneous equations with constant coefficients; special equations commonly occurring in dynamical and physical problems.

IV.

Mondays, Wednesdays, and Fridays, from 9.30 to 10.30.

FEE:—£4 4s.

ANALYTICAL GEOMETRY of three dimensions.

HIGHER DIFFERENTIAL EQUATIONS.

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APPLIED MATHEMATICS.

UNIVERSITY COURSES.

I.

Mondays, Wednesdays, and Fridays, from 9.30 to 10.30; or Tuesdays, Thursdays, and Saturdays, from 10.30 to 11.30.

FEE:—£4 4s.

STATICS.—The theory of the composition and resolution of forces; the theory of moments; parallel forces and couples; equilibrium of bodies under the action of forces in one plane; force-diagrams and link-polygons; centres of gravity; the simpler machines, balances, pulleys, screw-jacks, &c.; friction and its effects in the working of machines; theory of work and efficiency of machines; statics of jointed frame-works.

**DYNAMICS.**—Definition, measurement, and properties of velocities and accelerations; measurement of momentum and force; work and energy; motion of a body under the action of a force which is constant in magnitude and direction, including the motion of projectiles; theory of impacts; uniform circular motion; harmonic oscillations; the simple pendulum; theory of dimensions of dynamical quantities; change of units.

**HYDROSTATICS.**—Equilibrium of liquids under the action of gravity; pressures of liquids on plane areas and on solid bodies, partially or wholly immersed; Boyle's and Charles' laws of gases; hydrostatic machines, such as presses, barometers, pumps, &c.

## II.

Mondays, Wednesdays, and Fridays, from 10.30 to 11.30.

**FEE** :—£4 4s.

**STATICS.**—Continuation of the subjects of the Course I. and more difficult applications; application of integral calculus to the determination of centres of gravities; stability; equilibrium of strings; small curvatures of flexible beams.

**DYNAMICS OF A PARTICLE.**—Application of differential and integral calculus to the measurement of velocities and accelerations; motion of chains under the action of gravity; motion under central forces; motions of particles on fixed curves.

**RIGID DYNAMICS.**—Moments of inertia; motion of a rigid body about a fixed axis; theory of impacts and centres of percussion; theory of angular momentum and kinetic energy; motions of bodies in two dimensions under the action of given forces.

**HYDROSTATICS.**—Metacentres, stability and small oscillations of floating bodies.

For Vacation Reading, see p. 352.

## REQUIREMENTS FOR DEGREES.

*Intermediate Examinations in Science and Arts* :—

Course I.

*B.Sc. Degree* :—

(i.) Mathematics as a Principal Subject :—

Courses II and III in Pure, and Courses I and II in Applied Mathematics.

(ii.) Mathematics as a Subsidiary Subject :—

One of the following combinations :

(a) Courses II and III in Pure Mathematics.

(b) Courses I and II in Applied Mathematics (for students who know sufficient pure mathematics.)

(c) Course II in Pure and Course I in Applied Mathematics.

*B.A. Degree :—*

(i.) (When Mathematics is taken for two years). The same combinations as for Subsidiary Mathematics for B.Sc. Degree.

(ii.) (When taken for one year only). Course II in Pure Mathematics or Course I in Applied Mathematics.

TIME TABLE.

| MATHEMATICS.      | Mon.  | Tues. | Wed.  | Th.   | Fri.  | Sat.  |
|-------------------|-------|-------|-------|-------|-------|-------|
| PURE—             |       |       |       |       |       |       |
| Preliminary ...   | 10.30 | 10.30 | ...   | 10.30 | 10.30 | ...   |
| Course I. ....    | 12.30 | 11.30 | ...   | 11.30 | 12.30 | ...   |
| " II. ....        | 10.30 | ...   | 10.30 | ...   | 10.30 | ...   |
| " III. ....       | 9.30  | ...   | 9.30  | ...   | 9.30  | ...   |
| " IV. ....        | 9.30  | ...   | 9.30  | ...   | 9.30  | ...   |
| APPLIED—          |       |       |       |       |       |       |
| Course I. A. } .. | 9.30  | ...   | 9.30  | ...   | 9.30  | ...   |
| B. }              | ..    | 10.30 | ...   | 10.30 | ...   | 10.30 |
| " II. ....        | 10.30 | ...   | 10.30 | ...   | 10.30 | ...   |

## PHYSICS.

*Professor:* J. H. POYNTING, M.Sc.; Sc.D. (Cantab.),  
D.Sc. (Vict.), F.R.S., late Fellow of Trinity College,  
Cambridge.

*Lecturer:* G. A. SHAKESPEAR, B.A. (Cantab.),  
B.A., B.Sc. (Lond.).

*Assistant Lecturers* { G. BARLOW, D.Sc. (Lond. and  
Wales).  
(*Variant*)

*Special Lecturer on Experimental Physics:*  
G. A. SHAKESPEAR, B.Sc.

## INTRODUCTION.

All First Year Undergraduates in Pure Science, in Applied Science (including Engineering, Metallurgy and Mining) and in Medicine, are required to take Course I., which includes three lectures and two hours laboratory weekly.

Undergraduates who, having passed the Intermediate Examination in Science, select Physics as a subject for their degree, may take it as a Single Subsidiary, as a Double Subsidiary, or as a Principal Subject. The following are the courses in the different cases:—

*Single Subsidiary:* Course II., which includes three lectures weekly, and six hours laboratory weekly for one session.

*Double Subsidiary:* Course II. and six hours laboratory weekly in the second year. - Course III., which includes three lectures weekly, and six hours laboratory weekly in the third year.

*Principal:* Course II. and nine hours laboratory weekly in the second year. Course III. and twelve hours laboratory weekly in the third year.

The lectures and laboratory are open to all students who are qualified to take them, whether they are Undergraduates or not. Beginners will take Course I.

## UNIVERSITY COURSES.

## I.

For First Year Undergraduates in Pure Science, Applied Science, and Medicine.

*Lecture Hours.*—Mondays, Wednesdays, and Fridays, from 11.30 to 12.30.

*Practical Class.*—Mondays, Wednesdays or Fridays, 2.30 to 4.30.

FEE:—£5 15s. 6d.

Position, Velocity, and Acceleration always relative to a standard. Effect of change of standard. Resolution and Composition of Velocities and Accelerations. Uniform Motion in a circle. Conical Pendulum. Determination of  $g$ . Gravitation. Dimensions and Mass of the Earth.

PROPERTIES OF MATTER.—*Solids*: Sticking and sliding friction. Strains and Stresses. Bulk Strain and Shear Strain. Various kinds of permanent change of shape and rupture. Crystalline and Amorphous Solids. *Liquids*: Viscosity. Compressibility. Surface Tension. *Gases*: Compressibility. Viscosity. Kinetic Theory of Matter. Diffusion. Solution. Osmotic Pressure.

HEAT. — Temperature. Mercury-in-glass thermometer. Determinations of high and low temperatures. Expansion of solids and liquids. Circulation and Convection in Liquids. Expansion of gases at constant pressure and increase of pressure at constant volume. Gas thermometer. Circulation and Convection in gases. Movements of the Atmosphere. Quantity of Heat. Specific Heat and simple methods of measuring it. Conduction of Heat. Conductivity. Heat a form of Energy. The forms of Energy and their transformations according to fixed rates of exchange. The Conservation of Energy. Methods of determining the Mechanical Equivalent of Heat. The nature of Heat on the Kinetic Theory of Matter. Limitation in the amount of heat which can be transformed to work. Change of State. Latent Heat. Liquid-Vapour Change. Evaporation. Boiling. Vapour Pressure. Dependence of boiling point on Pressure, and explanation. Modes of measuring Vapour Pressure. Explanation of Vapour Pressure on the Kinetic Theory. Water Vapour in the Atmosphere. Hygrometers. Cloud. Fog. Dew. Solid-Liquid Change. Melting Point. Change of volume on melting. Effect of pressure on Melting Point. Regelation. Radiation. High and Low Radiating and Absorbing Powers. Comparison of properties of radiation from hot bodies and properties of light. Identification. The Spectrum. Substances absorb the radiations which they can emit. Dark lines in Solar and Stellar Spectra.

**LIGHT.**—Light a form of Energy. Rectilinear Propagation. Shadows. Eclipses. Inverse Square Law. Simple Photometers. Reflection. Refraction and Dispersion. Velocity of Light. Light a form of Wave Motion. Illustrations of Interference. The Diffraction Grating. Polarisation of Light. Mirrors. Prisms. Lenses. The Eye. Simple forms of Telescope and Microscope.

**SOUND.**—Sound arises from vibrating sources which send out longitudinal waves in air. Characteristics of the waves, corresponding to Loudness, Pitch and Quality. Velocity of Sound in air, and other media. Determinations of Frequency. Resonance. Its use to analyse sounds. Harmonics and Upper Partial. Quality. Transverse Vibrations of Strings. Vibrations of air in Pipes. Other vibrating sources. Beats. Concord and Discord. Combination Tones.

**MAGNETISM.**—Properties of Magnets. The two poles, their equality and inseparability. Magnetisation by Induction. Methods of making Magnets. Inverse Square Law. Magnetic Fields and Lines of Force. Strength of poles and Moments of Magnets. The Earth as a Magnet. Declination, Dip and Intensity. Magnetic Properties of different substances. Temperature and Magnetic Qualities.

**ELECTRICITY.**—The two kinds of Electrification and simple modes of producing them. Conductors and Insulators. The Gold Leaf Electroscope. Electrification by Induction. Frictional Electrical Machines. The Electro-phorus. The Wimshurst Machine. The Leyden Jar. Production and Disappearance of the two Electrifications, always in equal quantities. The Electric Field considered as the seat of respectively Electric Strain. Electric Forces and Electric Energy. The Inverse Square Law. The Unit of Charge. Potential, Capacity, and Energy of Charge. Electrometers. The effect of the medium. Specific Inductive Capacity.

**ELECTRO-MAGNETISM.**—Electric Discharge and the Magnetic Effects accompanying it. Electro-magnetic Waves. Electric Current. Voltaic and Storage Cells. The Magnetic Properties of the Current Circuit. The Ampere. Galvanometers and Ampere Meters. The Forces on Current Circuits in a Magnetic Field. Electric Motors. Ohm's Law. Resistance. The Heat developed in the Circuit. Joule's Law. The Ohm. The Volt. Electrolysis. Electro-chemical equivalents. Thermo-electricity. The Induction of Currents. Lenz's Law and Faraday's Law. The Dynamo. The Induction Coil. The Transformer.

For Text Books and Vacation Reading see p. 352.



NOTE.—Every member of the class is required to have a slide rule for calculations. Slide rules, price 2s. each, may be obtained in the Laboratory.

## II.

Lectures on Elementary Mathematical Physics for all Undergraduates taking Physics as a subject for a degree.

*Lecture Hours.*—Mondays, Wednesdays, and Fridays, from 11.30 to 12.30.

FEE for Lectures :—£3 13s. 6d.

*Laboratory Hours.*—Six hours weekly if Physics is a Subsidiary Subject, nine hours weekly if it is a Principal Subject, at times to be arranged.

FEE :—Six hours weekly, £6 6s. ; nine hours weekly, £7 17s. 6d.

MECHANICS.—Simple Harmonic Motion. Simple Pendulum. Motion of a body round a fixed Axis. Compound Pendulum. Methods of determining relative and absolute values of *g*. Ballistic Pendulum. Gravitation. Methods of determining *G*.

PROPERTIES OF MATTER.—*Solids*: Friction. Moduli of Elasticity and methods of determining them.—*Liquids*: Viscosity. Bulk Modulus of Elasticity. Surface Tension. *Gases*: Viscosity. Compressibility. Kinetic Theory of Gases. Molecular Dimensions.

SOUND.—Nature of Sound Waves in Air. Velocity of Sound. Measurements of Frequency. Forced Vibrations. Analysis of Waves. Strings. Pipes. Maintenance of Vibrations. Interference of Sound. Waves. Beats. Concord and Discord. Combination Tones.

LIGHT.—Photometry. Mirrors. Prisms. Lenses. Dispersion. Achromatic Combinations. Optical Instruments. Wave Theory. Interference. Diffraction. Polarisation by Reflection and Refraction. General account of Polarisation by Crystals. Circular and Elliptic Polarisation. Rotation of Plane of Polarisation. Polarimeters.

HEAT.—The Laws of Thermodynamics. Absolute Scale of Temperature. Volume-pressure and Entropy-temperature Diagrams and their use. Solution. Osmotic Pressure. Exact Measurements in Heat.

MAGNETISM AND ELECTRICITY.—General propositions with regard to an inverse square field of force. *Magnetism*: Magnetic Measurements. The Earth's Field. Paramagnetism and Diamagnetism. Theory of the Magnetic Field. *Electricity*: Theory of the Electric Field. Electric Measurements. *Electro-magnetism*: Electric Discharge. Magnetic Properties of Current Circuits. Heating Effects. Chemical Effects. Thermo-electricity. Current Induction. Electro-magnetic Measurements. Theory of the Electro-magnetic Field.

For Text Books and Vacation Reading, see p. 352.

### III.

(To begin in October, 1905).

Lectures during the Winter and Spring Terms on the Application of Mathematics to Physical Problems and on Methods of Experiment. Members of the Class will be required to write essays on Physical Subjects, to be read to, and discussed by, the Class.

*Lecture Hours*.—Mondays, Wednesdays, and Fridays, 10.30 to 11.30.

FEE :—£3 3s.

*Laboratory Hours*.—Six hours weekly if Physics is a Double Subsidiary Subject, twelve hours weekly if it is a Principal Subject, at times to be arranged.

FEES :—Six hours weekly, £6 6s.; twelve hours weekly, £9 9s.

#### CONFERENCE ON RECENT ADVANCES IN PHYSICS.

A conference will be held, one hour weekly, at a time to be arranged, for members of the Staff, Graduates, and Advanced Students, at which recent work will be described and discussed.

FEE :—£1 1s.

*LABORATORY WORK FOR GRADUATES OR FOR  
STUDENTS DESIRING SPECIAL COURSES.*

The Laboratory is open for purposes of Research or for Special Courses, from 10 to 1 and 2 to 5 daily, except Saturdays.

FEES :—Six hours weekly, £6 6s. ; nine hours, £7 17s. 6d. ; twelve hours, £9 9s. ; each succeeding six hours, £2 2s.

*SPECIAL COURSE FOR THE SESSION 1904-5.*

For Students who are candidates for graduation in June, 1905 (Course II Part II under previous regulations).

*Lecture Hours.*—Mondays, Wednesdays, and Fridays, from 10.30 to 11.30 during the Winter and Spring Terms.

FEE :—£3 3s.

*Laboratory Hours.*—Six hours weekly if Physics is a Double Subsidiary Subject ; twelve hours if it is a Principal Subject.

FEES :—Six hours, £6 6s. ; twelve hours, £9 9s.

PROPERTIES OF FLUIDS. — *Liquids*: Viscosity. Bulk Modulus of Elasticity. Surface Tension. *Gases*: Viscosity. Compressibility. Kinetic Theory of Gases. Molecular Dimensions.

LIGHT.—Photometry. Mirrors. Prisms. Lenses. Dispersion. Achromatic Combinations. Optical Instruments. Wave Theory. Interference. Diffraction. Polarisation by Reflection and Refraction. General account of Polarisation by Crystals. Circular and Elliptic Polarisation. Rotation of Plane of Polarisation. Polarimeters.

SOUND.—Nature of Sound Waves in Air. Velocity of Sound. Measurements of Frequency. Forced Vibrations. Analysis of Waves. Strings. Pipes. Maintenance of Vibrations. Interference of Sound. Waves. Beats. Concord and Discord. Combination Tones.

For Text Books and Vacation Reading, see p. 352.

TIME TABLE.

| PHYSICS.                    | Mon.                                   | Tues.     | Wed.  | Thurs.    | Fri.  |
|-----------------------------|----------------------------------------|-----------|-------|-----------|-------|
| Course I.—Lecture .....     | 11.30                                  | ...       | 11.30 | ...       | 11.30 |
| Laboratory.....             | 2.30                                   | <i>or</i> | 2.30  | <i>or</i> | 2.30  |
| Course II.—Lecture.....     | 11.30                                  | ...       | 11.30 | ...       | 11.30 |
| Laboratory.....             | <i>By arrangement.</i>                 |           |       |           |       |
| Course III.—Lecture ...     | 10.30                                  | ...       | 10.30 | ...       | 10.30 |
| Laboratory... }             | <i>By arrangement.</i>                 |           |       |           |       |
| (To begin in October, 1905) |                                        |           |       |           |       |
| Special Course for 1904-5 } |                                        |           |       |           |       |
| formerly Course II. }       |                                        |           |       |           |       |
| Part II. .... }             | 10.30                                  | ...       | 10.30 | ...       | 10.30 |
| Lectures..... }             |                                        |           |       |           |       |
| Laboratory.....             | <i>By arrangement.</i>                 |           |       |           |       |
| Conference .....            | <i>One hour weekly by arrangement.</i> |           |       |           |       |

## CHEMISTRY.

*Professor* : PERCY F. FRANKLAND, M.Sc. ; Ph.D., LL.D.,  
F.R.S.

*Lecturers* : { ALEX. MCKENZIE, M.A., D.Sc., Ph.D.  
                  { ALEX. FINDLAY, M.A., D.Sc., Ph.D.

*Demonstrators* : { T. S. MOORE, B.A., B.Sc.  
                          { (Vacant).

*Special Lecturer on Organic Chemistry* :  
ALEX. MCKENZIE, D.Sc.

*Special Lecturer on Physical Chemistry* :  
ALEX. FINDLAY, D.Sc.

### PRELIMINARY COURSE.

Tuesdays and Thursdays, at 11.30, during the Winter  
and Spring Terms.

FEE :—£2 2s.

Gaseous, liquid, and solid states of matter.

Nature of chemical change. Elements, compounds,  
and mixtures.

Types of chemical action.

Solution, crystallisation, distillation, diffusion.

Chemical and physical properties of air and water.

Nature of acids, bases, and salts.

Nature, occurrence, chief modes of preparation, and  
principal properties of the following non-metallic  
elements and their more important compounds :  
Hydrogen, Oxygen, Carbon, Silicon, Sulphur,  
Nitrogen, Phosphorus, Fluorine, Chlorine,  
Bromine, and Iodine.

Combination by weight and volume. Symbols,  
equations, and calculations relating to weight  
and volume. Nomenclature.

Chemical and Physical characteristics of metals as  
illustrated by Sodium, Calcium, Iron, Zinc,  
Lead, Mercury, Copper, and Silver.

This course of experimental lectures is adapted to the  
needs of those who are entirely unacquainted with  
Chemistry, and for those who are preparing for the  
Matriculation Examination of the University.

## UNIVERSITY COURSES.

## I.

A. This part of the course is arranged (1) to give a full exposition of the general principles of Chemical Science, (2) for the systematic study of the properties of the more important elements and their compounds, and (3) to indicate some of the chief applications of Chemistry in the Arts and Manufactures.

Four hours weekly during the Winter and Spring Terms. Some of the above meetings of the class will be devoted to tutorial work. Attendance at this tutorial class is compulsory, as is the performance of the exercises set by the Professor.

*Lecture hours.*—9.30 to 10.30 a.m. on Mondays to Thursdays inclusive.

FEE:—£4 4s.

B. This part of the course includes an introduction to the study of Organic Chemistry, with a description of the properties, relations, and methods of preparation of the more important groups of Carbon-compounds.

Three hours weekly during the Summer Term.

*Lecture hours.*—9.30 to 10.30 a.m. on Mondays, Wednesdays, and Fridays.

FEE:—£1 11s. 6d.

## II.

A. *Advanced Organic Chemistry.*—This course extends over two years, and is divided into two parts:—

(i.) Carbon-compounds of the Fatty Series.

(ii.) Aromatic and other Cyclic Compounds.

Only one of these parts will be taken in each year. The class meets twice weekly by arrangement during the Winter and Spring Terms.

FEE for each part:—£2 2s.

**B. *General and Physical Chemistry.***—The course will deal in outline with the following:—

Characteristic properties of gases, liquids, and solids, Other properties of matter, especially molecular volume, heat, refraction equivalent, and rotation; their relation to constitution.

Dilute solutions and their analogy with gases; their osmotic and vapour pressures, their boiling and freezing points.

Aqueous solutions: electrolysis and the electrolytic dissociation theory; rate of migration, conductivity and difference of potential.

Relations between the quantities of reacting substances; molecular and atomic weights; the periodic law.

Velocity of chemical action; reactions of various orders. Chemical equilibrium; homogeneous equilibrium and the law of mass action; heterogeneous equilibrium and the phase rule.

Energy of chemical systems; thermochemistry.

Thermodynamics; its application to certain elementary cases in chemistry and electrochemistry.

The kinetic theory.

The class meets once weekly by arrangement during the Winter and Spring, and twice weekly during the Summer term.

FEE:—£1 11s. 6d.

### III.

**A. *Advanced Organic Chemistry.***—Part (i.) or (ii.) of Course II. A.

The Class meets two hours weekly by arrangement during the Winter and Spring Terms.

FEE:—£2 2s.

**B. *General and Physical Chemistry.***—Short courses on special subjects attracting attention at the time.

FEE:—£1 11s. 6d.

**PRACTICAL CHEMISTRY.****I.**

Not less than nine hours weekly during the three terms must be devoted to Laboratory work.

The Course will include :—

Preparation of pure substances, gaseous, liquid, and solid.

Experiments illustrating the laws of combination.

Simple qualitative analysis, simple gravimetric and volumetric determinations.

**II.**

Not less than fifteen hours weekly during the three terms must be devoted to Laboratory work.

The Course will include :—

Advanced qualitative and quantitative analysis.

Simple organic preparations.

**III.**

Not less than fifteen hours weekly during the three terms must be devoted to Laboratory work.

The Course will include :—

Gas analysis, molecular weight, and other physical determinations.

Advanced organic preparations.

**LABORATORY PRACTICE.**

The Laboratory will be open daily from 9.30 to 5, except on Saturdays, when it will be closed at 1 p.m.

Each student will pursue an independent Course of study to be determined after consultation with the Professor. He will be guided in his operations by the Professor or his Assistants.



TEXT BOOKS.—Newth's Manual of Chemical Analysis, Qualitative and Quantitative (Longmans); Fresenius' Quantitative Analysis (Churchill); Sutton's Volumetric Analysis (Churchill); Cohen's Practical Organic Chemistry; Gattermann's Practical Methods of Organic Chemistry; Elbs' Electrolytic Preparations; Smith's Electro-chemical Analysis; Ostwald's Physical Chemical Measurements.

## FEES:—

|                | All day.        | Three hours<br>per day. | Three hours<br>per day;<br>five days a<br>week. | Three hours<br>per day;<br>three days a<br>week. |
|----------------|-----------------|-------------------------|-------------------------------------------------|--------------------------------------------------|
|                | <i>Guineas.</i> | <i>Guineas.</i>         | <i>Guineas.</i>                                 | <i>Guineas.</i>                                  |
| One Term ...   | 7               | 4½                      | 4                                               | 2½                                               |
| Two Terms ...  | 13              | 8½                      | 7½                                              | 5                                                |
| Three Terms... | 18              | 12                      | 11                                              | 6½                                               |

Laboratory students, upon admission, pay a deposit of £1 as caution money. This is returned at the end of the course, after deducting the cost, for breakages, &c., incurred. Caution money will not be repaid unless claimed by the student within one year of finally leaving the University.

Each student will be required to provide himself with a set of simple apparatus, the total cost of which need not exceed 30s. A few sets may be hired at the Laboratory store for a charge of 7s. 6d. each.

Gas, water, and all ordinary reagents (except methylated spirit, ether, chloroform, silver nitrate and platinum perchloride) are supplied by the University, and the larger forms of apparatus may be obtained on loan from the Laboratory store, on condition that breakages are made good.

Some of the special chemicals required for organic preparations have to be purchased by the Student.

Some additional Apparatus will also be required by each student upon commencing QUANTITATIVE ANALYSIS.

Special arrangements are made by the Professor for students pursuing Research.

## PRACTICAL CLASS.

*For Laboratory Students.*

A special class on the Theoretical Foundations of Analytical Chemistry is held every Saturday morning from 9.30 to 10.30. Attendance is compulsory for first-year students.

No Fee.

## Excursions.

During previous Sessions permission has been obtained to visit some of the great factories in and near Birmingham, in which chemical and metallurgical industries are carried on. Students have thus had most valuable opportunities of gaining a practical acquaintance with some branches of Applied Science. The privilege thus courteously granted by several manufacturers will, it is hoped, be enjoyed in every future Session. The excursions will be conducted by the Professor.

For Vacation Reading, see p. 353.

## REQUIREMENTS FOR DEGREES.

*Intermediate Examination in Science:—*

Lectures, Course I. (A and B.)

Laboratory, Course I.

*B.Sc. Degree:—*

(i.) Chemistry as a principal subject :

Lectures, Courses II and III.

Laboratory, Courses II and III.

(ii.) Chemistry as a subsidiary subject :

One of the following combinations :

(a) Lecture Courses II and III in Organic Chemistry, in successive years, with not less than fifteen hours weekly in the Laboratory during one Session.

(b) Lecture Courses II and III in General and Physical Chemistry, with not less than fifteen hours weekly in the Laboratory during three terms.

*B.A. Degree :—*

Lecture Course I, with not less than nine hours'  
Laboratory work weekly.

TIME TABLE.

| CHEMISTRY.           | Mon. | Tues. | Wed.                  | Thurs. | Fri. |
|----------------------|------|-------|-----------------------|--------|------|
| Preliminary Course * | ...  | 11.30 | ...                   | 11.30  | ...  |
| Course I. (A.)... *  | 9.30 | 9.30  | 9.30                  | 9.30   | ...  |
| Course I. (B.) † ... | 9.30 | ...   | 9.30                  | ...    | 9.30 |
| Course II.           | ...  | } ... | <i>By arrangement</i> |        | ...  |
| Course III.          | ...  |       |                       |        |      |

\* Winter and Spring Terms.

† Summer Term.

## ZOOLOGY AND COMPARATIVE ANATOMY.

*Professor:* T. W. BRIDGE, M.Sc.; Sc.D. (Cantab.), F.R.S.

*Lecturer:* W. E. COLLINGE, M.Sc.

*Museum Assistant:* F. W. CRISPE.

### PRELIMINARY COURSE.

*Lecture Days:*—Saturdays at 11.30.

A course of about twenty-five lectures on Animal Biology, with practical demonstrations, will be given during the Session. The course will meet the requirements of Matriculation Candidates who desire to take Animal Biology as one of their optional subjects.

FEE:—£1 11s. 6d.

### SYLLABUS.

- (1) Distinctive properties of living matter or protoplasm, as illustrated by the structure and mode of life of the *Proteus-animalcule* or *Amœba*. Differences between Animals and Plants. The nature of the Cell.
- (2) The general structure of the Frog. Elementary physiology of the Frog. The organs of digestion and their use. The nature of blood. The structure of the heart, and the arrangement of the more important blood vessels. The use of a circulatory system. The nature of excretory organs. Mode of breathing. The kidneys and their use.
- (3) The more important facts in the structure and habits of the freshwater Polype (*Hydra*); the Earthworm (*Lumbricus*); and the Crayfish (*Astacus*).
- (4) Methods of reproduction in animals. The egg-cell and the sperm-cell. Fertilization of the egg. Segmentation of the fertilized egg. The metamorphosis of the Frog, treated in an elementary fashion.

### UNIVERSITY COURSES.

#### I.

*Lecture Days:*—Tuesdays and Thursdays, at 12.30.

A course of about fifty lectures on Elementary Zoology.

A. Living and non-living matter.—Distinctive properties of living matter or protoplasm, as illustrated by the study of the Proteus animalcule or *Amœba*.—Distinction between Animals and Plants.—Comparison of the unicellular *Amœba* with the complex multicellular Frog.—Origin of the Frog. The egg-cell or ovum.—Segmentation of the ovum, and the subsequent formation of physiologically different groups of cells or tissues. Structure of the various elementary tissues of the Frog. Epithelia, connective, muscular, and nervous tissues. The combination of tissues to form organs.

B. The anatomy and histology of the various systems of organs in the Frog, and the elementary physiology of the organs of digestion, circulation and excretion. Physiological division of labour and morphological differentiation of structure.

C. This part of the course will treat of the structure of the following typical animals, viewed from a comparative standpoint:—

The Proteus-animalcule (*Amœba*), the Bell-animalcule (*Vorticella*), the freshwater Polype (*Hydra*), the Earthworm (*Lumbricus*), the Crayfish (*Astacus*), the Dog-fish (*Scyllium*), the Frog (*Rana*), and the general structure of the Rabbit (*Lepus*).

D. The concluding lectures of the course will deal with the phenomena of Reproduction. Asexual and Sexual Reproduction. Ova and Spermatozoa. Spermatogenesis. Fertilization and Segmentation of the ovum in *Amphioxus* and *Rana*. The development and larval history of the Frog, treated in an elementary fashion.

### Practical Class.

In the Practical Class, which will be conducted in connexion with this course, the above-mentioned animal types will be dissected or microscopically examined.

*Laboratory*.—Tuesday or Thursday afternoon, from 2 to 4.30, in the Winter and Spring Terms, and on Tuesday and Thursday afternoons during the Summer Term.

**FEE**.—For lecture and laboratory courses, £3 3s.

### II.

*Lecture Days*.—Mondays, Tuesdays, Wednesdays, and Fridays, at 12.30, or at such times as may be fixed by arrangement with the class.

The course will include a more or less detailed description of the Morphology and Embryology of selected examples of certain of the principal groups of animals, and of the more important modifications of structure which are met with within the limits of each group. The Phylogenetic relations of each group will also be discussed, as well as the more elementary facts of its Geographical Distribution and Bionomics.

### SYLLABUS OF GROUPS AND TYPICAL EXAMPLES.

| PHYLA.                      | EXAMPLES.                                                               |
|-----------------------------|-------------------------------------------------------------------------|
| <b>PROTOZOA.</b>            |                                                                         |
| ( i. ) Rhizopoda .....      | <i>Amaba, Gromia, Miliola, Globigerina, Actinophrys, Thalassicolla.</i> |
| ( ii. ) Mycetozoa .....     | <i>Fuligo.</i>                                                          |
| ( iii. ) Mastigophora ..... | <i>Monas, Codonisa, Ceratium, Noctiluca.</i>                            |
| ( iv. ) Ciliata .....       | <i>Paramecium, Stentor.</i>                                             |
| ( v. ) Acinetaria .....     | <i>Acincta.</i>                                                         |
| ( vi. ) Sporozoa .....      | <i>Monocystis, Coccidium.</i>                                           |
| <b>PORIFERA.</b>            |                                                                         |
| ( i. ) Calcarea .....       | <i>Ascidia, Sycon.</i>                                                  |
| ( ii. ) Non-calcarea .....  | <i>Spongilla, Euspongia.</i>                                            |
| <b>COELENTERATA.</b>        |                                                                         |
| ( i. ) Hydrozoa .....       | <i>Tubularia, Obelia, Campanula, Physophora, Millepora.</i>             |
| ( ii. ) Scyphozoa.....      | <i>Aurelia.</i>                                                         |
| ( iii. ) Anthozoa—          |                                                                         |
| (a) Alcyonaria .....        | <i>Alcyonium, Gorgonia.</i>                                             |
| (b) Zoantharia .....        | <i>Actinia, Edwardsia, Flabellum, Madrepora.</i>                        |
| ( iv. ) Ctenophora .....    | <i>Pleurobrachia.</i>                                                   |
| <b>PLATYHELMINTHES.</b>     |                                                                         |
| ( i. ) Turbellaria .....    | <i>Convoluta, Polycelis, Dendrocalum, Leptoplana.</i>                   |
| ( ii. ) Trematoda.....      | <i>Distomum.</i>                                                        |
| ( iii. ) Cestoda .....      | <i>Tenia.</i>                                                           |
| <b>NEMERTEA</b> .....       | <i>Carinella, Cerebratulus.</i>                                         |

| ANNELIDA.                      | EXAMPLES.                                               |
|--------------------------------|---------------------------------------------------------|
| ( i. ) Archiannelida .....     | <i>Polygordius.</i>                                     |
| ( ii. ) Chætopoda .....        | <i>Nereis, Lumbricus.</i>                               |
| ( iii. ) Hirudinea.....        | <i>Hirudo.</i>                                          |
| POLYZOA.                       |                                                         |
| ( i. ) Entoprocta .....        | <i>Loxosoma.</i>                                        |
| ( ii. ) Ectoprocta.....        | <i>Bugula.</i>                                          |
| BRACHIOPODA .....              | <i>Waldheimia, Lingula.</i>                             |
| MOLLUSCA.                      |                                                         |
| ( i. ) Pelecypoda .....        | <i>Nucula, Mytilus, Anodonta.</i>                       |
| ( ii. ) Scaphopoda .....       | <i>Dentalium.</i>                                       |
| ( iii. ) Gastropoda            |                                                         |
| ( a ) Isopleura .....          | <i>Chiton.</i>                                          |
| ( b ) Anisopleura.....         | <i>Patella, Haliotis, Buccinum, Aplysia, Helix.</i>     |
| ( iv. ) Cephalopoda.....       | <i>Nautilus, Sepia.</i>                                 |
| ARTHROPODA.                    |                                                         |
| ( i. ) Crustacea .....         | <i>Apus, Daphnia, Cyclops, Lepas, Nebalia, Astacus.</i> |
| ( ii. ) Arachnida.....         | <i>Limulus, Scorpio.</i>                                |
| ( iii. ) Onychophora .....     | <i>Peripatus.</i>                                       |
| ( iv. ) Myriapoda .....        | <i>Scolopendra, Julus.</i>                              |
| ( v. ) Insecta .....           | <i>Periplaneta.</i>                                     |
| ECHINODERMA.                   |                                                         |
| ( i. ) Crinoidea .....         | <i>Antedon.</i>                                         |
| ( ii. ) Holothuroidea .....    | <i>Holothuria.</i>                                      |
| ( iii. ) Stelleroidea.....     | <i>Asterias, Ophiura.</i>                               |
| ( iv. ) Echinoidea .....       | <i>Echinus.</i>                                         |
| CHORDATA.                      |                                                         |
| ( i. ) Hemichorda.....         | <i>Balanoglossus.</i>                                   |
| ( ii. ) Urochorda .....        | <i>Appendicularia, Ascidia, Pyrosoma, Salpa.</i>        |
| ( iii. ) Cephalochorda .....   | <i>Amphioxus.</i>                                       |
| ( iv. ) Craniata [Vertebrata]. |                                                         |
| ( a ) Cyclostomata .....       | <i>Petromyzon, Myxine.</i>                              |
| ( b ) Pisces .....             | <i>Scyllium, Chimæra, Polypterus, Gadus, Ceratodus.</i> |
| ( c ) Amphibia.....            | <i>Rana, Triton.</i>                                    |
| ( d ) Reptilia .....           | <i>Lacerta, Chelone, Boa, Crocodilus.</i>               |
| ( e ) Aves .....               | <i>Columba.</i>                                         |
| ( f ) Mammalia .....           | <i>Echidna, Macropus, Lepus.</i>                        |

### Laboratory Course.

In the practical class, which will be conducted in connection with this course, a selection of the above-mentioned animal types will be dissected and microscopically examined.

**FEE:**—For lectures and laboratory course, £6 6s.

### III.

The course for Third Year Students will consist mainly of Laboratory (at least eight hours weekly) and Museum work, but occasional lectures on special aspects of the subject will be given at times to be fixed by arrangement with the class.

**FEE:**—Lectures and Laboratory, £8 8s.

### *SPECIAL SATURDAY MORNING COURSE.*

#### **Economic Zoology.**

By Mr. W. E. COLLINGE.

During the Summer Term a course of fifteen lectures will be given on ECONOMIC ENTOMOLOGY. The course will deal with a selection of the more important Insect-pests which are injurious to crops, fruit trees, or to cattle, and with the various methods of preventive and remedial treatment.

#### SYLLABUS.

The general structure of a typical Insect (Cockroach). Head and appendages; the thorax, legs and wings; the alimentary, circulatory and respiratory organs; nervous system and sense organs. Reproductive system.

The Classification of Insects. General distinctive characters of the different orders of Insects.

The life-history of Insects. Larvæ, and their habits. Pupæ. The economic importance of the different stages.

Insects injurious to crops, fruit trees, or to farm animals: Aphides, Scale-insects, Saw-flies, Flea-beetles, Onion-fly, Carrot-fly, Weevils, Wire-worms, Diamond-back Moth, Hessian Fly, Thrips and Midges, Pear-midge, Red Spider, The Bot Fly, and the Ox Warble Fly.

Insects useful to the Agriculturist or Horticulturist: Lady-bird Beetles, Ichneumonids, Hovering Flies, &c.

Conditions favourable or unfavourable in the diffusion of insect-pests.



Preventive and remedial measures, artificial remedies, insecticides, their preparation and use.

The course will be illustrated by lantern-slides, and by specimens from the University Museum of Zoology.

*Lecture Day*.—Saturdays, at 10.30, commencing on April 29th.

FEE :—10s. 6d.

### Zoological Laboratory.

The Laboratory will be open daily, from 10 to 5 (Saturdays, 10 to 1). In addition to students taking up practical work in connection with the various lecture courses, the Laboratory will be open to all who may desire to engage in any special course of practical work, or to pursue original investigations, with a view to the requirements for the higher University Degrees of M.Sc. and D.Sc.

LABORATORY FEE :—£3 3s. per term.

For Vacation Reading, see p. 353.

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### THE PORT ERIN BIOLOGICAL LABORATORY.

The Council of the University makes an annual grant to the Marine Biological Laboratory at Port Erin, in the Isle of Man, in return for which one of the tables in the Laboratory is reserved solely for the free use of those students in the Zoological Department of the University who wish to study Marine Zoology, or pursue some branch of research. During the occupation of the table each worker will be entitled to the use of microscopes, re-agents, including a specified allowance of methylated spirit, and other apparatus, and of the boats, dredges, tow nets belonging to the laboratory, so far as is compatible with the claims of other workers and with the routine work of the station.

Facilities will also be given to workers to make their own collections of marine organisms.

Students wishing to avail themselves of the privilege are requested to apply to Professor Bridge, from whom further information may be obtained.

*REQUIREMENTS FOR DEGREES.*

*Intermediate Examination in Science:*—Course I in the first year.

*B.Sc. Degree:*—

- I. Zoology as a Subsidiary Subject: Course II in the second year.
- II. Zoology as a Principal Subject: Course II in the second year, and Course III, in the third year.

*B.A. Degree:*—Course II.

*M.Sc., D.Sc.*—Students who have taken the degree of B.Sc., and who desire to proceed to the higher University degrees of M.Sc. and D.Sc., may confer with the Professor as to the choice of a subject for the thesis (M.Sc.), or for original research (D.Sc.).

TIME TABLE.

| ZOOLOGY.         | Mon.                   | Tues. | Wed.  | Thur. | Fri.  | Sat.  |
|------------------|------------------------|-------|-------|-------|-------|-------|
| Course I. ....   | ...                    | 12.30 | ...   | 12.30 | ...   | ...   |
| Course II. ....  | 12.30                  | 12.30 | 12.30 | ...   | 12.30 | ...   |
| Course III. .... | <i>By arrangement.</i> |       |       |       |       |       |
| Economic Zoology | ...                    | ...   | ...   | ...   | ...   | 10.30 |
| Laboratory ..... | Daily from 10 to 5     |       |       |       |       |       |

## BOTANY AND VEGETABLE PHYSIOLOGY.

*Professor* : W. HILLHOUSE, M.Sc.; M.A. (Cantab.), F.L.S.

*Lecturer* : A. H. R. BULLER, D.Sc.; B.Sc., (Lond.),  
Ph.D. (Leip.).

*Special Lecturer on Plant Diseases* : A. H. BULLER, D.Sc.

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### PRELIMINARY COURSE.

*Lecture Days* :—In the Winter and Spring Terms (Lectures and Demonstrations), Thursdays, 11.30 to 1; in the Summer Term, Tuesdays and Thursdays, 11.30 to 12.30.

**FEE** :—£2 2s.

The Course will cover the following Syllabus for the Matriculation Examination :—

**A. *Plant Form, as a Key to Relationships.***

- (1) The chief characters of root, stem, bud, and leaf of the principal British plants of quite general distribution and of garden plants of general cultivation, and the nature and structure, as determinable by eye or lens, of common bulbs, fruits, seeds, or other vegetable products, in ordinary use, and universally met with in shop or market.
- (2) The most important floral and fruiting characters of the following British Natural Orders :—Ranunculaceae, Cruciferae, Caryophyllaceae, Leguminosae, Rosaceae, Umbelliferae, Compositae, Scrophulariaceae, Labiatae, Liliaceae.

**B. *How Plants Live, Grow and Reproduce.***

- (3) The mode of development of the plant, the elementary facts of nutrition and respiration, the nature and function of root, stem and leaf, and their relations with external conditions and forces, to be determined *experimentally* by the aid of seedlings grown in the class-room, &c., from the following typical seeds or one-seeded fruits, viz., castor-oil (or buck-wheat), pea (or bean), sunflower, mustard (or cress), and maize (or wheat or barley), and the bulb of hyacinth (or onion).
- (4) The functions of the floral parts, their relations with pollination, the production and protection of seeds, and the provisions for seed-dispersal, especially as illustrated in the Natural Orders named above.

## UNIVERSITY COURSES.

## I. (VEGETABLE BIOLOGY).

*Lecture Days*.—Mondays and Fridays at 4, excluding Fridays in Summer Term.

*Laboratory*.—The course will be illustrated by work in Morphology, external and internal, and Physiological experiments, on Fridays 2.15 to 4, and Saturdays 9.30 to 10.30; or, *as an alternative*, on Saturdays 10.30 to 1.

**FEE**:—Lectures and Laboratory, £3 3s.

The Morphology of the Seed: Germination; the external morphology of the Seedling. The physiology of germination; the general nature of the reserve food-stuffs; the relations of the seedling with external conditions and natural forces; the theory of Irritability. Growth to exhaustion, and the general conditions of active life and self-nutrition.

The general morphology of the Plant Body, and the principal modifications in form and distribution of the vegetative members, Root, Shoot, and Leaf.

The Living Principle of the plant—Protoplasm; the Cell, and its principle modifications for special purposes; evolution and distribution of the Tissues, considered especially from a biological standpoint.

The Leaf as a bio-anatomical study; epidermis, vascular bundles, ground-tissue, intercellular spaces.

The internal morphology of the Stem in its chief modifications; the results of cambial activity; the secondary protective tissues, Cork and Bark. The Root.

The Bud; the principal characteristics of increase in length in shoot and root.

The phenomena of climbing, and illustrations of special powers of movement.

The elementary facts in the Nutrition of the plant, including the nature and sources of the raw materials of food, and the constitution of the soil: Absorption and the Transpiration current; the nature and functions of Chlorophyll; the broad principles of metabolism, and the distribution, storage, and utilisation of its products. Respiration.

Nutrition without chlorophyll, and special fermentative changes, illustrated by Yeast, Bacteria and *Pythium*. Degrees of Parasitism in Flowering Plants. Insectivorous Plants.

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Reproduction. Asexual and Sexual, further illustrated by *Spirogyra*, *Fucus* and *Agaricus*. The primary divisions of the Vegetable Kingdom, viz.:—Thallophyta; Bryophyta (illustrated by a moss-plant); Pteridophyta (a fern-plant, and *Selaginella*); and Phanerogamia (flowering plants).

The general character and structure of the reproductive organs in Phanerogamia; pollination, and its methods; fertilisation; the development of the seed and the fruit; seed protection and dispersal; the natural spread of plants, and its limitations.

The Flower, and its chief modifications in structural plan, as illustrated in the following Natural Orders of the British Flora, viz.:—Ranunculaceae, Cruciferae, Violaceae, Caryophyllaceae, Leguminosae, Rosaceae, Umbelliferae, Compositae, Scrophularineae, Labiatae, Cupuliferae, Liliaceae, Gramineae; and the description of plant specimens in semi-technical language.

*Botanical Excursions.* A few will be arranged for Saturday afternoons in the Summer Term, and will be concerned with the Local Flora in its environment relations; as *e.g.* Moor, Marsh and Bog; Meadow and Riverside; Woodland, Hedgerow, and Climbers; Roadside and cultivated ground.

## II. (GENERAL COURSE).

*Lecture Days.*—Mondays, Tuesdays, Thursdays and Fridays at 11.30.

*Laboratory.*—Six hours weekly, with two extra hours in the Summer Term. By students taking Botany as a principal or double subsidiary subject, more time should be given.

**FEE:**—Lectures and Laboratory, £6 6s.

### A. *Life-history and Classification.*

The morphology, external and internal, embryology, and phylogenetic relationships of the chief groups of plants, and their most important sub-divisions, will be studied by the aid of the following selected examples, which, so far as possible, will be dealt with in Laboratory and the field as well as Lecture Room.

**Thallophyta.**

## PROTOTHALLOPHYTA.

- i. Flagellata.
- ii. Myxomycetes.
- iii. Schizomycetes (Bacteria).
- iv. Cyanophyceae (Schizophyceae) *Gloeocapsa, Nostoc, Oscillaria.*

## ALGAE.

- i. Diatomeae.
- ii. Peridineae
- iii. Conjugatae *Spirogyra, Desmids.*
- iv. Chlorophyceae (a) Protocecoideae *Sphaerella, Volvox, Pleurococcus, Hydrodictyon.*
- (b) Confervoideae *Ulothrix, Cladophora, Edogonium, Coleochaete.*
- (c) Siphonaeae *Taucheria.*
- v. Phaeophyceae (a) Phaeosporeae *Laminaria.*
- (b) Fucaceae *Fucus.*
- (c) Dictyotaceae.
- vi. Rhodophyceae *Batrachospermum. Polysiphonia.*
- vii. Characeae *Chara, Nitella.*

## HYPHOMYCETES (FUNGI).

- i. Phycomycetes (a) Oomycetes *Pythium, Phytophthora, Albugo.*
- (b) Zygomycetes *Mucor.*
- ii. Ascomycetes (a) Perisporiaceae *Erysiphe, Eurotium.*
- (b) Discomycetes *Peziza.*
- (c) Pyrenomycetes *Nectria, Claviceps.*
- (d) Tuberaceae *Tuber.*
- (e) Exoasci *Ecoascus.*
- (f) Saccharomycetes *Yeast.*
- iii. Basidiomycetes (a) Ustilagineae *Ustilago, Tilletia.*
- (b) Uredineae *Puccinia.*
- (c) Hymenomycetes *Psalliota, Stereum.*
- (d) Gasteromycetes *Lycoperdon.*
- iv. Lichenes *Collema, Parmelia (or Anaptychia).*

**Bryophyta.**

- |              |                      |                                          |
|--------------|----------------------|------------------------------------------|
| i. Hepaticae | (a) Ricciaceae       |                                          |
|              | (b) Marchantiaceae   | <i>Marchantia</i> .                      |
|              | (c) Anthocerotaceae  | <i>Anthoceros</i> .                      |
|              | (d) Jungermanniaceae | <i>Jungermannia</i> (or <i>Pellia</i> ). |
| ii. Musci    | (a) Sphagnaceae      | <i>Sphagnum</i> .                        |
|              | (b) Andreaeaceae     |                                          |
|              | (c) Placaceae        |                                          |
|              | (d) Bryineae         | <i>Funaria</i> , <i>Polytrichum</i> .    |

**Pteridophyta.**

- |                  |                     |                                                          |
|------------------|---------------------|----------------------------------------------------------|
| i. Filicineae    | (a) Filices         | <i>Botrychium</i> , <i>Angiopteris</i> , <i>Pteris</i> . |
|                  | (b) Hydropterideae  | <i>Salvinia</i> , <i>Pilularia</i> .                     |
| ii. Equisetineae |                     | <i>Equisetum</i> .                                       |
| iii. Lycopodinae | (a) Lycopodiaceae   | <i>Lycopodium</i> .                                      |
|                  | (b) Selaginellaceae | <i>Selaginella</i> .                                     |
|                  | (c) Isoetaceae      | <i>Isoetes</i> .                                         |

**Phanerogamia (Spermaphyta).**

- |                  |                 |                  |
|------------------|-----------------|------------------|
| i. Gymnospermae  | (a) Cycadales   | <i>Cycas</i> .   |
|                  | (b) Ginkgoales  | <i>Ginkgo</i> .  |
|                  | (c) Coniferales | <i>Pinus</i> .   |
|                  | (d) Gnetales    | <i>Ephedra</i> . |
| ii. Angiospermae |                 |                  |

Monocotyledones

Dicotyledones

*Palaeobotany*.—The elements of the distribution of the chief groups of plants in time.

*Field Botany*.—In addition to the general morphology, &c. of the Phanerogamia, the course will include the characters and relationships of the most important Natural Orders in the British Flora and their centres of extra-British distribution; and the chief sub-orders of the following: Ranunculaceae, Rosaceae, Solanaceae, Cupuliferae, Coniferae; the description of plants (not necessarily British) in technical language; the origins of the British Flora.

B. *Physiology and Experimental Morphology.*

The stability of the Plant Body.

Aeration.

Nutrition; the processes of absorption of water and dissolved substances, and their distribution; Root-pressure; Transpiration.

The metabolic processes. Respiration.

The phenomena of growth and movement. Irritability; the transmission of stimuli, and the mechanism of movement.

In the Laboratory the most important of the above phenomena will be experimentally studied, in the main qualitatively.

## III.

Short Courses of Lectures upon special branches of work, as may be arranged.

*Third Year Laboratory.* Students who make Botany a Principal Subject will have taken the General Course in their second year, with extended Laboratory practice; and in their third year will confine their attention to one of the following divisions:—

(a) General Morphology, Embryology, and Development, with Classification and Distribution in time and space;

(b) Cytology, Physiology and Experimental Morphology, and Plant Diseases.

Micro-chemistry, and the practice of modern histological methods, will be studied in either case.

FEE :—Lectures and Laboratory, £8 8s.

For Vacation Reading, see p. 355.

*REQUIREMENTS FOR DEGREES.*

*Intermediate Examination in Science* :—Course I.

*B.Sc. Degree.* Botany as a Principal Subject :—Courses II (with extended laboratory work), and one of alternative Courses III.

Botany as a Subsidiary Subject :—Course II, or, in certain cases, parts of one of alternative Courses III and of II; as a Double Subsidiary Subject, Course II, with extended laboratory practice, and such parts of alternative Courses III as may suit each special case.



Course I is also appropriate for the following:—Intermediate Science or Preliminary Scientific of the University of London (with Supplementary Laboratory work); the first examination for the degrees in Science or Medicine of the Universities of Edinburgh and Glasgow; and the Minor Examination of the Pharmaceutical Society.

Course II.—London Int. Sci. Honours, and Pass B.Sc.

#### BOTANICAL LABORATORY.

The Laboratory is open daily from 9.30 to 5.0, for the purpose of study or research. In connection with it is a large *Experimental Greenhouse* in the Botanical Gardens, Edgbaston, especially adapted for work in Vegetable Physiology and Experimental Morphology.

#### BOTANICAL MUSEUM.

Amongst other collections, the Museum is particularly rich in specimens illustrating the Fungous Diseases of plants, and the destruction of timber trees and of timber.

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*Botanical Gardens, Edgbaston.* Students attending any of the above classes can obtain from the Professor a card of admission to these Gardens.

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#### SPECIAL EVENING COURSE.

##### DISEASES OF GARDEN PLANTS.

By A. H. R. BULLER, D.Sc.; B.Sc., Ph.D.

In the Spring Term a course of ten lectures, especially intended for gardeners, and all who are interested in plant life. In it will be included an account of the most important diseases of garden plants, rusts, mildews, root-tubercles of peas, &c., witches' brooms (of the birch tree), black-currant, galls, American blight, the rotting of woodwork, and other pathological phenomena connected with plant life.

The course will be illustrated by lantern slides, diagrams, demonstrations, and specimens from the Museum of Vegetable Pathology.

*Lecture Day.*—Thursdays, at 8.0.

FEE:—10s. ; working gardeners, 2s. 6d.

### T I M E T A B L E .

(LECTURES ONLY.)

| BOTANY.          |     |     |     | Mon.                   | Tues.  | Wed. | Thurs. | Fri.  |
|------------------|-----|-----|-----|------------------------|--------|------|--------|-------|
| Preliminary      | ... | ... | ... | ...                    | †11.30 | ...  | 11.30  | ...   |
| Course I.        | ..  | ... | ... | 4.0                    | ...    | ...  | ..     | 4.0*  |
| Course II.       | ... | ... | ... | 11.30                  | 11.30  | ...  | 11.30  | 11.30 |
| Course III.      | ... | ... | ... | <i>By arrangement.</i> |        |      |        | ...   |
| Special Course   | ... | ... | ... | ...                    | ...    | ...  | 8.0    | ...   |
| (Plant Diseases) |     |     |     |                        |        |      |        |       |

\* Winter and Spring Terms only

† Summer Term only.

## GEOLOGY

(WITH PHYSIOGRAPHY AND GEOGRAPHY).

*Professor:* CHARLES LAPWORTH, M.Sc.; LL.D. (Aber.),  
F.R.S., F.G.S.*Assistant Professor:* W. W. WATTS, M.Sc.; M.A., F.R.S.,  
Sec.G.S., late Fellow of Sidney Sussex College, Cambridge.*Lecturer:* F. RAW, B.Sc. (Lond.), F.G.S.

## GEOLOGY.

## UNIVERSITY COURSES.

## I.

*Lectures* (Winter and Spring Terms).—Tuesday, Thursday, and Saturday, at 9.30. (Summer Term).  
The same with Saturday excursions.*Laboratory.*—Tuesday, Thursday, and Saturday, at 10.30.

FEE:—£5 5s.

**Physical Geology.***General characters* of the simple rock types, clastic and crystalline.*Origin of the materials of the clastic rocks.*—Denudation by weather, rivers, glaciers, and the sea; deposition of sediments, and structures resulting from it; consolidation and cementation.*Classification of clastic rocks* and characters of the chief types; breccia, conglomerate, grit, sandstone, clay, shale, limestone, coal, salt, gypsum.*Origin and classification of the crystalline rocks.*—Volcanoes: their action and the rocks produced by them. Minerals: quartz, feldspars, mica, augite, hornblende, olivine, calcite, salt, kaolin, serpentine. Textures of the crystalline rocks: Chief types of volcanic rocks; rhyolite, trachyte, obsidian, pitchstone, pumice, andesite, basalt and tachylyte; clastic volcanic rocks: Chief types of plutonic rocks; granite, syenite, diorite, gabbro, dolerite.*Rock structures.*—Folds, faults, cleavage, joints; mineral veins.

*Arrangement of rocks in the earth's crust ; geological maps and sections.*

*Foliated, metamorphic and altered rocks.*—Gneiss, granulite, schist, quartzite, porcellanite, marble ; minerals of metamorphism, chistolite, mica, garnet ; contact and dynamic metamorphism.

## Historical Geology.

*Introductory.*—The laws and generalizations of *Stratigraphy* and *Palaeontology* : *Fossils*, their mode of petrification, and uses in Geology : The order of superposition : The Geological Record.

*The Eozoic Era.*—General physical characters and relationships of the *Precambrian* Rocks.

*The Protozoic Era.*—General characters of the rocks and fossils of this era : Outlines of the classification of the formations and organic remains of the *Cambrian*, *Ordovician*, and *Silurian* Systems in Britain.

*The Deutozoic Era.*—Chief characteristics of strata and organic remains of British rocks of this era : The *Devonian* and Old Red Sandstone Period : The *Carboniferous* System of Britain ; its main divisions and fossils ; chief British coalfields and their economic products : The *Permian* Rocks, and their peculiar phenomena.

*The Mesozoic Era.*—Physical features of the *New Red Sandstone* rocks of Britain and Germany : British salt producing districts : The *Jurassic* Formations and their ironstones, building stones, and most abundant fossils : The *Cretaceous* Rocks, conditions of their deposition and life.

*The Cainozoic Era.*—Contrasts between Mesozoic and Cainozoic life : Chief divisions and zoological features of British *Tertiary* Rocks : Crust disturbances during Tertiary time.

*The Glacial Epoch.*

## Local Geology.

Summer Term.—*Lectures and Laboratory* as in other terms, with the addition of Saturday Excursions.

Outlines of the geology and physiography of the Birmingham District. In addition to the lectures the students attend the series of excursions on Saturday afternoons during the Summer Term. (See page 212).

## II.

*Lectures.*—Monday, Wednesday, and Friday, at 10.30.

*Laboratory.*—Monday, Wednesday, and Friday, at 11.30.

FEE:—£4 4s.

*(a) Petrological.*

The description and determination by chemical, physical, and microscopic tests of the chief rock-forming minerals : study and recognition in hand specimens and thin slices of the chief rock types : practical determination and explanation of rock textures : methods of occurrence and distribution in space and time of these rocks, and the structures characteristic of them.

*(b) Structural.*

The structure and relations of rock masses in the field and on a large scale : study and interpretation of maps and sections : principles of geological surveying : relationships of rock structure to the relief and economics of a country.

*(c) Stratigraphical.*

The stratigraphy, paleontology, and distribution of the geological formations of Britain ; their chief representatives abroad : The geological systems and their subdivision into series and stages : The life of the systems : Characteristic fossils and principles of correlation : Physical geography of the geological periods : Volcanic history of Britain : Landscape, physiography, and economic products connected with the rocks of the different systems : Physiographical geology in general, and in its application to two or three typical districts.

*(d) Areal Geology*

A detailed study of the stratigraphy of certain definite areas in the Midlands considered as types : The development of their different rock-systems ; their inter-relations and fossils. In addition to attending the Lectures the students study the selected areas in the field, making one field excursion each week during the Summer Term. See page 212.

## III. A.

## APPLIED GEOLOGY.

*Lecture and Laboratory* hours, Monday and Friday at 12.30, in the Winter Term, and by arrangement in the Spring and Summer Terms. *Field Work* on Friday, after 10.30, in Summer.

FEE:—£4 4s.

## 1. The Economic Geology of Britain.

*Water*: Overground supplies; drainage areas, reservoirs; sanitation; underground supplies; springs, wells, drainage areas, calculation of resources, effects of rock-structure and surface configuration, contamination, &c. *Building Materials*: Stone, brick-clay, slate, cement; testing; distribution and qualities of building materials; ornamental stones; road metals; building sites. *Fuels*: Position, and succession of coal-bearing rocks; Coal and coalfields; distribution of coals; the Midland coalfields; structure and correlation of coalfields; hidden coalfields; petroleum. *Ores*: Characters and distribution of the chief metalliferous minerals; nature and structure of the chief kinds of ore deposits; chief ore-bearing districts in Britain.

## 2. Field Geology.

The methods and practice of geological surveying as applied to some single district: relief of the ground; succession of rocks; delineation of rocks on maps; relative resistance of rocks to denudation; effect on the physiography, and its use in elucidating underground structure; working out of structure from surface indications; preparation of vertical and horizontal sections; detection of faults and unconformities and their economic results.

A special district is surveyed and mapped in detail. One whole day (Friday) in each week is devoted to this work in the Summer Term.

Knowledge of the stratigraphy of the district covered is accepted, *in lieu of* the stratigraphical and areal geology of Course II, from those students who take Course III A for their degree subject.

## III. B.

## BIOLOGICAL GEOLOGY (PALEONTOLOGY).

Lecture and Laboratory hours by arrangement.

FEE :—£4 4s.

**1. General Palæontology.**

The nature and preservation of fossils : The general succession of life as revealed by the geological record ; the imperfection of the record ; a special study of the hard parts of each of the principal classes of the invertebrata and cryptogamia ; the structure, classification and range of the chief families and their most important genera ; a general knowledge of the fauna and flora of the geological systems.

**2. Detailed Palæontology.**

*A detailed study* of one of the fossil orders of the invertebrata or cryptogamia ; or of the fauna or flora of some one geological system and its divisions.

## III. C.

## PETROLOGICAL GEOLOGY (MINERALOGY AND PETROGRAPHY).

Lecture and Laboratory hours by arrangement.

FEE :—£4 4s.

**1. Mineralogy.**

Form and structure of Minerals ; nature of crystalline form ; systems of crystalline form ; isomorphism ; pseudomorphism : Chemical composition of Minerals : Classification of Minerals : Description and determination of minerals by microscopic, chemical, and physical tests ; crystal optics and the use of convergent plane and polarised light.

**2. Petrography.**

Classification and determination of rocks by microscopical, physical, and chemical means in hand specimens and rock-slides ; study of the occurrence and distribution of rocks in Britain and the principal and typical foreign localities ; principles underlying the genesis and classification of rocks ; dynamical and thermal metamorphism of rocks.

## IV.

## HIGHER STRATIGRAPHY, PALÆONTOLOGY AND PETROLOGY.

Lecture Days and hours by arrangement.

FEE for each Term :—Lectures and Laboratory (four hours weekly), £2 2s.

This Course is projected for candidates for the degree of M.Sc., and for those who desire to study in detail the Petrological, Historical, and Biological aspects of Geology. The Course extends over one year, the student taking up the several sections of the subject in sequence, and accompanying each stage by a study of the books and publications in the College Library, and of the illustrative series of fossils and rocks in the College Museum. During the third Term the pupil prepares a Thesis upon some selected subject in Petrology, Geology, or Palæontology.

## V.

## RESEARCH WORK IN GEOLOGY AND PALÆONTOLOGY.

Advanced students who have completed their systematic College Courses, those who have obtained the degree of M.Sc. and are preparing for the Doctorate, and occasional geological students, British or Foreign, studying some special branch of Geology or Palæontology, work in the Museum and Laboratory during term time, under the direction of the Professor and Assistant Professor, with use of the collections and microscopes.

The chief subjects at which such students may work include (1) Graptolites, Trilobites, Brachiopoda, &c., British and Foreign; (2) Field Geology and Geological Mapping; (3) Petrography.

The large collections of rocks and fossils in the Geological Museum from the older rocks, the range and variety of the geological formations in the Birmingham District.



and the proximity and availability of the classical geological ground of the West of England, afford research students especial opportunities and facilities for the prosecution of original work.

FEE for each Term :—£2 2s.

## VI.

### PRACTICAL WORK.

#### LABORATORY CLASSES.

In connexion with the foregoing Courses, Practical classes are held in the Geological Laboratory, upon such days and hours as are found most convenient to the students. The instruction given has reference to the actual study and examination of the minerals, rock-specimens and fossils noticed in the lectures; the methods of mounting, and determining of fossils; the preparation of rock specimens for the microscope and cabinet; the drawing of figures, maps, sections, &c.

Persons not attending Lectures, but wishing to work in the Geological Laboratory and Museum, can do so at all times when open, on payment of a terminal fee of £2 2s., or for two hours weekly, 10s. 6d. each term. Such students will be encouraged and assisted in the prosecution of their private studies or original work.

For Vacation Reading, see p. 355.

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#### REQUIREMENTS FOR DEGREES.

*B.Sc. Degree.* 1. Geology as the *principal* subject; Course I in the first year; Course II in the second year, together with part A, B, or C of Course III.

2. Geology as a *subsidiary* subject :—

(a) One year, Course I.

(b) Two years, Course I and Course II.

*B.A. Degree.* Geology as a *subsidiary* subject:—

(a) One year, Course I

(b) Two years, Course I. and Course II.

TIME TABLE.

| GEOLOGY.               | Mon.  | Tues.                  | Wed.  | Thurs. | Fri.  | Sat.  |
|------------------------|-------|------------------------|-------|--------|-------|-------|
| Course I. ... ..       | ...   | 9.30                   | ...   | 9.30   | ...   | 9.30  |
| Laboratory ... ..      | ...   | 10.30                  | ...   | 10.30  | ...   | 10.30 |
| Excursions (Summer)    | ...   | ...                    | ...   | ...    | ...   | Aft.  |
| Course II. ... ..      | 10.30 | ...                    | 10.30 | ...    | 10.30 | ...   |
| Laboratory ... ..      | 11.30 | ...                    | 11.30 | ...    | 11.30 | ...   |
| Field-work (Summer)    | ...   | ...                    | ...   | ...    | 10.30 | ...   |
| Course III, IV, V, VI. | ...   | <i>By arrangement.</i> |       |        | ...   | ...   |

## ECONOMIC GEOLOGY.

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This Course is projected for those who are unable to attend a complete systematic Course in Geology, but who are desirous of knowing the principles and practice of the science in so far as they can be utilised in business, and in professional and every-day life.

This Course will commence with a section dealing with the fundamental facts and principles of Geology. This will be followed by sections dealing with Geology as applied to water-supply, sanitation, agriculture, &c., and a further group of sections dealing with the application of geology to architecture, mining, &c.

Section I must be taken by all. The remaining sections are elective.

Each Section will include about ten lectures and ten demonstrations, two hours a week, during the Winter and Spring Terms.

FEE for each Section :—£1 1s.

WINTER TERM. Monday and Friday at 12.30.

I. *The Outlines of Geology*.—The rocks and rock-formations; geological maps and sections, their interpretation and uses.

II. *Geology and Water Supply*.—

(a) Overground waters and their action and employment; drainage, sanitation, water supply, reservoirs.

(b) Underground waters and water supply, water-bearing rocks and formations, springs, wells, hard and soft waters.

SPRING TERM. Hours by arrangement.

III. *Geology and Architecture*.—Chief British building stones, their characters and distribution; fire-clays; brick-clays; cements; building sites; road metals.

- IV. *Mining Geology*.—Fuels of Britain ; the coal-fields ; coal and coal-mining, &c. ; ores and ore-bearing formations ; chief ore-bearing districts of Britain and the Colonies.

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## PHYSIOGRAPHY.

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### Elementary Physiography.

(For Matriculation Examination.)

*Lectures*.—Tuesday and Thursday, at 3.30, during the Winter Term, and the first half of the Spring Term.

FEE :—£1 11s. 6d.

(See page 206.)

## GEOGRAPHY.

*Professor* : W. W. WATTS, M.Sc. ; M.A. (Cantab.),  
F.R.S., Sec.G.S.,

late Fellow of Sidney Sussex College, Cambridge.

*Lecturer* : F. RAW, B.Sc. (Lond.), F.G.S.

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## I. THE PRINCIPLES OF GEOGRAPHY.

## PHYSICAL AND POLITICAL.

This course of Lectures extends over two years, Physical and Political Geography being taken concurrently.

The first year course will embrace the more elementary portions of both branches of the subject ; the second year course, while dealing chiefly with Advanced Political Geography, will also treat of Advanced Physical Geography, and particularly with its application to the political side of the subject.

This course of lectures embraces (1) a summary of the chief facts known concerning the present *Surface Features*, and the grander *Natural phenomena* of the Earth upon which we live—its lands, its waters, its climates, and its inhabitants ; (2) a study of the *Agents of Change*, organic and inorganic, which have brought about the present form and characteristics of its visible surface, and the distribution and arrangement of its living creatures ; (3) a brief sketch of the *Past history* and changes of the earth's surface ; and (4) an investigation of the present relations of this surface to *Man and his works*, his industries, his commerce, his distribution and progress, in so far as they can be traced through the outlines of the Political Geography of the present day.

In other words, the special aims of the Lectures are :—First, to give the student a general knowledge of the present physical features, the climates and productions of the earth ; next, to show how all these probably came into being, and how they are in continual process of change and development ; and finally, to show how man himself is related to the phenomena of the earth upon

which he dwells, how he has peopled its surface, and availed himself of its productions.

### Physical Geography. (Physiography.)

This course includes thirty Lectures on Elementary Physical Geography delivered to First Year Students and thirty Lectures on Advanced Physical Geography delivered to Second Year Students.

FEE for each Course :—£1 11s. 6d.

### Elementary Physical Geography and Physiography.

*Lectures.*—Tuesday and Thursday, at 3.30, during the Winter Term, and first half of the Spring Term.

*The Earth* in its relation to the other bodies in the Solar System : The form and size of the globe ; its movements and their effects in day and night, the seasons, eclipses.

*The Surface of the Earth* : General distribution of land and water ; the contour, relief, and chief features of the continental land areas.

*The Atmosphere* : Its composition and density ; the determination, distribution, and representation of its temperature and pressure ; the circulation of the air, permanent and periodic winds, storms ; the moisture of the air, dew, hoar-frost, fog, mist, clouds, rain, snow and hail ; general distribution of rainfall and its causes ; weather-charts and storm-warnings ; climate.

*The Sea* : Composition, specific gravity, and temperature of sea-water ; depths of the ocean, form and deposits of its floor ; movements of the ocean-water, waves, tides, and currents.

*The Land* : The chief constituents of the earth-crust, stratified and unstratified rocks ; the work of rain, frost, rivers and ice ; springs, glaciers, valleys, water-falls, lakes, meadows, deltas ; earth-movement and earthquakes ; volcanoes, their phenomena and distribution.

*Life* : The geographical distribution of animals and plants ; biological regions.

TEXT BOOKS RECOMMENDED.—Page and Lapworth ; *Introductory Text Book of Physical Geography* (Blackwood). Morgan ; *Elementary Physiography* (Longmans). Simmons ; *Physiography for Beginners* (Macmillan). Philip's *Classbook of Physical Geography* (Philip). Herbertson ; *Outlines of Physiography* (Arnold).

## Advanced Physiography and Physical Geography.

*Lectures.*—Monday at 3.30 and Tuesday at 9.30 during the second half of the SPRING TERM, and the whole of the SUMMER TERM.

*The inter-relation, composition, movements, and origin of the earth, moon, planets, fixed stars, and other celestial bodies; the bearing of spectrum analysis on these investigations; the nebular and meteoric theories.*

*The mass and density of the earth: The condition of the interior.*

*Latitude and longitude: Their use and determination; globes, maps, and projections; terrestrial magnetism.*

*The precession of the equinoxes, and the revolution of the apsides and their effects.*

*The Atmosphere: Light and colour; atmospheric electricity; climates, and their distribution in space and time; glacial and genial climates.*

*The Hydrosphere: Classification, history and origin of the ocean-basins; tides in their relation to planetary evolution; life in the oceans; coral reefs.*

*The Lithosphere: The composition, arrangement and history of the materials of the earth-crust; formation of rocks; crust movements and their effects; theories of volcanoes and earthquakes, with regard to the state of the earth's interior; relief of the lithosphere and its causes; plateaux, mountains, plains.*

*Landscape: Origin and development of landscape features; escarpments and drainage systems; adjustment of streams; divides; terraces; effects of earth movement; youth, maturity, and old age of streams; form and development of coast-lines; history of landscape.*

*The Physiography of the continents, islands, and ocean basins.*

*Biological Geography: Classification of animals and plants; ocean life; terrestrial life; causes of distribution: Distribution of the races of mankind: Man as a geographical agent.*

TEXT BOOKS RECOMMENDED.—Mill; *Realm of Nature* (Murray). Hinman; *Eclectic Physical Geography* (Sampson Low). Davis; *Physical Geography* (Ginn).

## Elementary and Advanced Political Geography.

This course includes about thirty Lectures on Elementary Political Geography delivered to First Year Students, and about thirty Lectures on Advanced Political Geography delivered to Second Year Students.

*Lectures:—Elementary*, Tuesday and Thursday, at 3.30 during the second half of the Spring Term, and the whole of the Summer Term: *Advanced*, Monday at 3.30 and Tuesday at 9.30, during the Winter Term and the first half of the Spring Term.

FEE for each course:—£1 11s. 6d.

The object of this course is to afford the student a broad view of the facts and principles of Political Geography in general, and to show how these facts and principles are illustrated and employed in the detailed study of one or more typical countries in each of the grander divisions of the globe. Commencing with a brief description of Man in general, his races, languages, industries, &c., the course treats of the chief geographical and political divisions of the globe in order. Each of the great continental divisions, its physiography, productions, peoples, and political sections is developed in outline, and two or more of its most typical countries worked out in fuller detail. In Europe, the British Islands are primarily selected for detailed study, and in other parts of the world chief regard is paid to the British colonies and dependencies.

The following is a general syllabus of the course:—

*The Earth and Man.*

1. *Man in General.*—(a) *Races of Mankind*; (b) *Languages*; (c) *Modes of Existence*; (d) *Trades and Commerce*; (e) *Grades of Civilisation*; (f) *Modes of Government*.

*The Countries of the Earth.*

2. *Europe.*—(a) Europe in general, its divisions, physiography, countries, chief cities, inhabitants, and productions.

(b) British Islands, relief, climate, products, industries, towns, trade, divisions, and government.

(c) France; (d) German Empire; (e) Russian Empire.

3. *Asia.*—(a) Asia in general; (b) India and other British possessions; (c) China; (d) Turkish Empire.

4. *Africa.*—(a) Africa in general; (b) Egypt; (c) British Africa.

5. *America.*—(a) North America in general; (b) British America; (c) South America in general; (d) Brazil.

6. *Australasia.*—(a) Australasia in general; (b) Australia; (c) New Zealand.

TEXT BOOKS RECOMMENDED.—Keith Johnson; A School Geography, Physical and Descriptive (Stanford). Meiklejohn; A New Geography (Holden). Mill; The International Geography.



## II. COMMERCIAL COURSE ON GEOGRAPHY.

A Course of Lectures on the Principles of Geography, with special reference to their application to Commerce.

*Lectures.*—Tuesday and Thursday, at 12.30

FEE for the Course :—£3 3s.

### Physical Geography. Winter Term.

1. Day and night, seasons, latitude and longitude, time, climates.
2. Maps and projections.
3. The Earth's surface.
4. The Air ; Temperature, pressure, movements, storms, rain.
5. The Seas ; Ocean basins, temperature, currents, tides.
6. The Lands ; relief, composition.

### Geography of Societies. Spring Term.

1. Distribution of Animals and Plants.
2. Antiquity of Man and early civilisations.
3. Races, migration, and languages of mankind.
4. Governments and Education.
5. Trade ; principles, commodities, transport.

### Geography of Nations. Their resources and communications. Summer Term.

1. Europe.
  2. British Isles.
  3. France, Germany, and Russia.
  4. The United States.
  5. British Empire and its relations.
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## AFTERNOON CLASSES.

## The Outlines of Geology.

*Winter and Spring Terms.*

During the Winter and Spring terms, a Course of about Twenty Afternoon Lectures (ten in each term) is delivered on the *Outlines of Geology*.

These Lectures are of a popular and untechnical character, and present a summary of the chief principles, methods, and conclusions of the Science of Geology. They are illustrated by a series of diagrams, rock specimens, and fossils. This course is intended for beginners in geology, for amateurs, for those persons of leisure who desire a knowledge of the outlines of the science, for ladies, and for those who intend to join the Summer Excursion Class.

Admission to the first lecture free.

## SYLLABUS.

## Physical Geology.

## WINTER TERM.

*Lecture Hour.*—Thursday, at 2.30 p.m.

*FEE* :—10s. 6d.

1. *The Exterior of the Earth-Crust.*

Form and size of the Earth; the atmosphere; oceans; the land and water areas of the globe.

2. *The Materials of the Earth-Crust.*

Rock-forming minerals, rock structure, classification of rocks.

3. *Agents concerned in altering the form and structure of the Earth-Crust.*

(a) *Internal.*—Volcanoes, Geysers, Earthquakes, &c.

(b) *External.*—

*Destructive* : The air, rain, rivers, frost, glaciers, the sea.

*Re-constructive* : The atmosphere, rivers, lakes, plants, animals.

4. *Architecture of the Earth-Crust.*

(a) *The Sedimentary rocks.*—Their stratification, jointing, inclination, contortion and faulting.

(b) *The Igneous rocks.*—*Intrusive*: granites, porphyries, &c.  
*Contemporaneous*: lavas, tuffs, and ashbeds.

(c) *The Altered rocks.*—Their cleavage, contact-metamorphism and regional-metamorphism.

(d) *The Mineral Veins* and ore beds.

TEXT BOOKS RECOMMENDED.—Watts: *Geology for Beginners* (Macmillan). Lapworth: *Intermediate Text Book of Geology* (Blackwood). Judd; *The Student's Lyell* (Murray).

## Historical Geology.

### SPRING TERM.

*Lecture Hour.*—Thursday, at 2.30 p.m.

FEE:—10s. 6d.

1. *The Life of the Present.*—Classification of animals and plants; distribution of life forms; theories of biological evolution; mode of preservation of animal and vegetable remains.
2. *The Geological Record.*—History of geological discovery; principles of chronological classification of formations; the history of the geological record.
3. *The Fundamental Rocks.*—The crystalline formations; their extent; richness in minerals, and barrenness of life.
4. *The Dawn of Existence.*—The primeval islands and shallow seas of Western Europe; their prolific and remarkable forms of animal life.
5. *The Continental Period.*—The western mountain ranges, and great British lakes of Old Red Sandstone time; the coral banks and fern forests of the Coal period; the great salt-lakes and sandy deserts of the Permian and Trias.
6. *The Great Depression.*—The coral-reefs of the Jura and the Midlands; gigantic sea lizards and ammonites. The vast ooze-covered sea-floor of the Chalk.
7. *The Re-emergence.*—The gradual development of the Old World; formation of the Alps and Himalayas. The British Andes, volcanoes and plant life; warm climates and remarkable mammalian life of Tertiary time.
8. *The Age of Man.*—The Ice period, its ice sheets and glaciers, appearance of early man, disappearance of the mammoth and its contemporaries, progress of man through pre-historic times.
9. *The Evolution of the Earth Crust,* and the life types with which its surface has been successively peopled.

ADDITIONAL TEXT BOOK RECOMMENDED. — Jukes-Browne; *The Building of the British Isles* (Bell).

**Local Geology and Excursion Class.****SUMMER TERM.****GEOLOGY OF BIRMINGHAM AND DISTRICT.**

The main object of this course is to afford the student a practical knowledge of the geological structure of the neighbourhood of Birmingham and of the Midlands generally. The various geological formations found within thirty miles of Birmingham are described in a series of Lectures, illustrated by typical rocks and fossils.

Upon every Saturday when practicable, Excursions are made by the members of the class to the more important geological localities of the district, and the visible phenomena studied in the field.

The members of this class are encouraged and assisted in the collection, determination and preservation of representative rocks and fossils.

This class is intended not only for ordinary students of the science, but also for amateurs and persons of leisure, ladies, collectors, miners, architects, and for all those who take an interest in the geology of the district.

*Lecture Hour.*—Thursdays, at 2.30 p.m.

**FEES** for the Course:—Excursions and Lectures, £1 1s.; Lectures only, 10s. 6d.

**TEXT BOOK RECOMMENDED.**—Lapworth, Watts, and Harrison; *A Sketch of the Geology of the Birmingham District* (Stanford).

**GEOLOGICAL EXCURSIONS.**

As a general rule the Excursions take place on Saturday after 1.0 p.m. A few whole-day excursions are made by arrangement with the members of the class.

**FEE** for the Excursions:—£1 1s.

**Landscape and Geology.**

A course on this subject will be delivered when required.

Hours by arrangement.

**FEE**:—10s. 6d. for each term.

### Advanced Geology.

#### *Winter and Spring Terms.*

An afternoon Class in Advanced Geology will also be formed during the Winter and Spring Terms.

*Lecture Hour.*—Thursdays, at 3.30 p.m.

FEE:—10s. 6d. for each Term.

The lectures in Advanced Geology deal with some special aspect of the science (*a*) in which research is still in progress, (*b*) which is of interest from the theoretical point of view, or (*c*) which is related to the advancement of other sciences. Among the subjects already treated of are (1) Geology and Scenery, (2) the Relief of the Globe, (3) Earth and Man, (4) Palæontology and Evolution, (5) the Face of the Globe, (6) Tectonic Geology, (7) Landscape and Geology.

The Subject of the Advanced Lectures during 1904-1905 will be *Tectonic Geology, The Deuterozoic Systems.*

## HUMAN ANATOMY AND ANTHROPOLOGY.

*Professor:* BERTRAM C. A. WINDLE, M.A., M.D., Sc.D.  
(Dub.), F.R.S., F.S.A.

*Lecturer:* W. WRIGHT, D.Sc.; M.B. Ch.B., (Vict.),  
F.R.C.S.

*Demonstrators:* JOHN H. WATSON, M.B., B.S., F.R.C.S.,  
VIOLET A. P. COGHILL, M.B., Ch.B. (Edin.)

*Hon. Demonstrators:* W. E. BENNETT, M.B., Ch.B., F.R.C.S.,  
J. JAMESON EVANS, M.D.; C.M. (Edin.), F.R.C.S.

*Special Lecturer on Osteology:* W. WRIGHT, D.Sc.

The courses in Human Anatomy will be found fully described in the Medical section of the Calendar. The following information relates to candidates taking the above subject for the B.Sc. examination.

I.—In Human Anatomy the candidate must have pursued the entire medical course for two Winter and one Summer Sessions as detailed in the regulations for medical degrees. He must also produce evidence that he has dissected the whole body at least once.

II.—In Anthropology the candidate must have attended the following courses of lectures:

- (i.) The course on Human Embryology.
- (ii.) A course of lectures and practical instruction in Anthropology and Ethnology. This course will include a general review of the province of Anthropology. Zoological and Anthropological characters of Man. Physical measurements on the living subject. Cranial and other skeletal measurements. The chief races of the world and their physical characters.
- (iii.) A short course of five lectures on the Principles of Teratology which will be given at the close of the course on Embryology.

FEES for these Courses:—

|                                         |     |     |     |         |
|-----------------------------------------|-----|-----|-----|---------|
| I. For the two Winter and one Summer    |     |     |     |         |
| Sessions                                | ... | ... | ... | £26 5 0 |
| Incidental Fees                         | ..  | ... | ... | 3 13 6  |
| II. For the Courses detailed under this |     |     |     |         |
| section                                 | ... | ... | ... | 4 4 0   |

## PHYSIOLOGY.

*Professor :* E. W. WACE CARLIER, M.Sc. ; M.D.,  
(Edin.), F.R.S.E.

*Lecturer :* J. H. RHODES, M.B., Ch.B. (Edin.),  
M.R.C.S.

### UNIVERSITY COURSES.

#### I.

The course prescribed for the first year in the Faculty of Medicine.

#### II.

#### Advanced Practical Physiology.

Mondays and Fridays, from 2.30 to 4.30, during the whole Winter Session.

The Course will include the more advanced problems of experimental physiology, histology and physiological chemistry. The experimental part includes the physiology of muscle, nerve, heart, circulation, respiration, central nervous system and organs of sense and voice. The chemical section includes the analysis of organic substances found in the body, the chemical and spectroscopic examination of the blood and its derivatives, the chemistry of the digestive products and the results of their activity. The histological part consists in the practice of the more advanced and complicated methods of histological research and of the results obtained by their use.

FEE for the Course, £6 6s. including an incidental fee of £1 1s.

Students desiring to prosecute research or other independent work in the laboratory will be allowed to do so *at the discretion of the Professor* on the payment of a fee of 2 guineas, including an incidental fee of £1 1s., for each period of three months.

#### REQUIREMENTS FOR DEGREES.

##### *B.Sc. Degree.*

- (1) Physiology as a Principal Subject : Students must take Course I, and in the subsequent year, must repeat the systematic lectures, and attend Course II.
- (2) Physiology as a Subsidiary Subject : Course I.

## ENGINEERING.

## CIVIL AND MECHANICAL.

*Professor* : F. W. BURSTALL, M.Sc. ; M.A. (Cantab.), M.I.C.E.,  
M.I.M.E.

*Lecturer on Civil Engineering* : F. H. HUMMEL, A.M.I.C.E.

*Lecturer on Mechanical Engineering* : R. C. PORTER, M.Sc.

*Draughtsman* : E. LANGFORD HAZEL.

*Demonstrators* : { (Vacant)

## ELECTRICAL.

*Professor* : (Vacant)

*Lecturer* : D. K. MORRIS, Ph.D., A.M.I.E.E.

*Assistant Lecturer and Demonstrator* : GEORGE A. LISTER.

## INTRODUCTION.

The full courses extend over four years, the work during the first year being the same for all students. After the first year the student must take up definitely special courses either in Civil, Mechanical, or Electrical Engineering. Students who enter after matriculation and who pass successfully the examinations at the end of each year will be entitled to the degree of Bachelor of Science in the branch of Engineering to which they devote themselves. Students who are unable to take a full course will be admitted to the classes as far as room permits, and on leaving the University will receive a certificate stating the courses they have taken and their position in the examinations.

The training throughout the course is largely practical and experimental in its character ; the University workshops are equipped with the most modern tools, and practical instruction is given in both wood and iron work, by means of a graded series of exercises.

In the later part of the course attention is directed to experimental work in the Engineering Laboratories, which are fitted with modern appliances for demonstration of the principles underlying engineering practice.



The strength of materials laboratory contains a fifty ton testing machine, for testing long or short specimens in tension, compression and bending, a torsion testing machine, and a cement testing plant. Hydraulic tanks are also provided for the investigation of the laws governing the flow of water through orifices and weirs, and the flow of water in pipes. The plant also includes a machine for measuring the deflections of a beam due to falling weights, and a journal friction testing machine.

The experimental work on steam and gas engines will be carried out in the power station at the new site, Bournbrook. The station will constitute the heat engine laboratory.

On account of the importance and responsibility of working in this laboratory no student who is not an undergraduate will be allowed to take a course there, unless he previously passes a special examination to show that his general engineering knowledge is sufficient to ensure that he can do so with profit. The examination will be held during the first week of each term.

The course for Electrical Engineering students is the same as that for mechanical engineers for the first two years, and only differs in the third and fourth years in the increased time spent in the electrical engineering laboratory and on the design of examples of electrical machinery and apparatus.

The Electrical Engineering Laboratory is provided with appliances for all classes of electrical testing work.

Advanced students are encouraged to take up some line of investigation of technical interest, for which every facility is provided.

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## LECTURE COURSES.

## SECOND YEAR.

## COURSE I.

## DESCRIPTIVE COURSE.

Tuesdays and Thursdays, 10 to 11, throughout the Session.

FEE :—£2 12s. 6d.

For the first term the lectures will deal with steam boilers, steam engines, and gas and oil engines.

*Types of Boilers and Boiler Fittings.*—Cornish, Lancashire, vertical, locomotive, marine, water tube, feed heaters, economizers, super-heaters.

*Steam Engine parts.*—The cylinder, slide valve, piston, stuffing box, kinds of packing, crosshead, guides, connecting rod, crank shaft, eccentric, bearings, lubrication, flywheels, cocks and valves.

*Types of Steam Engines.*—Mill engine, locomotive, marine, high speed, pumps and pumping engines, duplex pumps, feed pumps, centrifugal pumps.

*Gas and Oil Engines.*—Otto cycle, valves, governors, ignitors, Priestman oil engines, Hornsby oil engine, Diesel motor.

During the second term the Lectures will include the description of tools used in Engineering, and will be illustrated by a large collection of lantern slides.

*Hand Tools for Wood and Iron.*—The plain lathe, engine lathe, slide rest, screw cutting, self-act and cross traverse, large lathes, special lathes (such as the capstan lathe), milling machine, planing machines, shaping machines, slotting machines, drilling machine, sensitive and multiple drills, grinding machines, boring machines.

The third term will be devoted to Electrical Engineering.

Construction and elementary principles of design of Arc Lamps, Glow Lamps, and Switches; Ammeters, Voltmeters, and Electric Meters for direct and alternating current. Construction of direct dynamos and motors. Storage batteries.

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*COURSE II.*

APPLIED MECHANICS.

Tuesdays and Thursdays at 12, Saturdays at 11, throughout the Session.

FEE :—£3 13s. 6d.

The lectures on Tuesdays and Thursdays will be on Graphics, according to the following syllabus :—

(a) **Graphical Mensuration.**—Areas of polygons, closed curves, and surfaces. Volumes.

**Vectors.**—General properties, rules for addition and subtraction, position vectors.

**Mass Centres**, by vectors and other constructions. Points, lines, surfaces, and solids. Moment of Inertia.

(b) **Graphical Statics.**—Derivation of vector and link polygons, and conditions of equilibrium using these. Supporting forces. Force diagrams for roofs and girders. Diagrams of bending moment and shearing force. Maximum bending moments and shearing forces for rolling loads. Arches and chains in equilibrium. Problems in hydrostatics.

(c) **Kinematics of Machinery.**—The tracing of point paths. Definitions, pairs, chains, instantaneous centres, centrode, axode. Velocities (angular and linear) in four bar mechanism, and slider crank chain. Velocity and acceleration curves in general. Special mechanisms.

The Saturday lecture will deal with the fundamental principles of work, energy power, friction, and strength of materials, stress, strain tension, compression, bending.

*Exercise Class.*—Tuesdays, 2 to 5.

FEE :—£3 13s. 6d.

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**THIRD YEAR.***COURSE III.***GENERAL ENGINEERING.**

Tuesdays, Thursdays and Saturdays at 10, throughout the Session.

FEE:—£3 13s. 6d.

**Elementary Course on strength of materials.**—Including the behaviour of ductile materials in tension, yield point, resilience, stress-strain curves, impact, repetition of stress, Wohler's laws, tensile strength of various materials, iron, steel, brass, copper.

*Compression.*—Long and short columns, Euler's and Gordon's formulae.

*Bending.*—Neutral axis, moment of resistance, moment of inertia, graphic methods, calculating of the strength of box girders, joists, angles, ties.

*Shear.*—Single and double shear, modulus of shear, riveted joints.

*Tension.*—Strength and stiffness of hollow and solid shafts.

*Complex Stresses.*

**Hydraulics.**—General properties of fluids, relations between head, pressure, and velocity, discharge over weirs and through orifices, Bernoulli's theorem, fluid friction, friction in pipes, loss of head due to changes of section, hydraulic gradient.

**Elementary Theory of the Heat engine,** laws of heat, properties of air, specific heat, Carnot cycle, properties of steam, latent heat, perfect steam engines, actual engines, behaviour of steam in the cylinder.

**Machine Design.**

*General Principles*—Properties of materials. Straining actions. Stress, physical constants for ordinary materials, factors of safety, working stress for dead and live loads.

*Fastenings, Screws.*—Standard forms and dimensions of threads, multiple threaded screws. Screw bolts, studs, set screws.

*Keys and Cotters.*—Forms of keys. Taper and dimensions. Gib and cotter joint. Special precautions to be taken with alternating stresses, methods of adjustment and fastening.

*Riveted Joints.*—Proportions of rivets, riveting, punching, drilling, caulking. Forms and proportions of joints. Shearing resistance of rivets and tenacity of plates before and after riveting, calculation of pitch. Arrangement of groups of rivets in ties, etc. Graphic method of designing joints. Efficiency of joints.

*Boilers.*—Thickness of shell, junction of plates, stays, angles.

*Pipes and Pipe Joints. Transmissive Machinery.*

*Shafting and Couplings.*—Strength of shafts, twisting moment and transverse loads, variation in twisting moment. *Couplings.*

#### COURSE IV.

##### CIVIL ENGINEERING.

Tuesdays and Saturdays, 11 to 12, throughout the Session.

**FEE:**—£2 12s. 6d.

*Hydraulics.*—*Water Supply.*—Sources, storage and distribution. Flow in pipes and channels. Water motors. Pumps and Turbines. Simple constructional work. Classification of bridges, loads, stresses and design in simple cases. Masonry construction. Materials. Foundations. Piles. Cofferdams. Caisson. Retaining walls. Culverts, arches.

#### COURSE V.

##### MECHANICAL ENGINEERING.

Tuesdays and Thursdays, 11 to 12, throughout the Session.

**FEE:**—£2 12s. 6d.

General theory of friction, applications, to rolling friction, chains, belts, transmission of power by ropes and

belts, by gearing, link work, valve gears, Zeuner diagrams, trip gears, expansion gears, governors, flywheels, balancing of engines.

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COURSE VI.

ELECTRICAL ENGINEERING.

Tuesdays, Thursdays and Saturdays at 12.

FEE:—£3 13s. 6d.

One hour each week is devoted to the working out of electrical engineering calculations and design.

*Magnetic Fields.*—Lines of magnetic force. Induced magnetisation. The magnetic qualities of iron and steel. Hysteresis. Permeability.

*Electric Currents.*—Their direction and magnitude as derived from their magnetic, thermal and chemical effects. Lateral force on a wire carrying current in a magnetic field; work done by its motion. Electrical and magnetic units. Measurement of electrical work and power.

*Electrical Resistance.*—Current density and “drop” in conductors. Three-wire system. Insulation and laying of cables. Standard of conductivity. Specific resistance. Temperature changes. Design and construction of resistances for the absorption of power. Standards of resistance and electromotive force. Test room measuring instruments and methods. Simple tests of conductivity, insulation and capacity. Testing sets.

*Direct Reading Instruments.*—Classification. Details of construction of standard types. Elements of design of moving parts for greatest reliability and economy. Methods of checking and calibration. Electric Meters.

*Secondary Cells.*—Construction and treatment. Cells for high discharge rates. Central station batteries.

*Laws of Electromagnetic Induction.*—Unit of inductance. The telephone and induction coil. Eddy currents. Alternating currents, elementary treatment.

*The Magnetic Circuit.*—Ring magnets. Measurement of permeability and hysteresis. Magnetising force due to coils of wire. Reluctance.

*Dynamos and Motors.*—First principles of design. Ring and drum armatures. Bipolar and multipolar machines. Calculation of induced electromotive force. Field magnet winding, series, shunt and compound. Back electromotive force and speed of motors. Starting resistances. Speed regulation. Design of magnetic circuits of dynamo machinery. Tests for efficiency and separation of losses. Alternating current motors: simple theory of, and mode of construction and regulation.

*Central Stations.*—General account of arrangement and choice of plant and controlling devices.

## FOURTH YEAR.

### COURSE VII.

#### CIVIL ENGINEERING.

Tuesdays, Wednesdays, and Thursdays, 10 to 11.

FEE:—£3 13s. 6d.

#### Masonry Construction.

Natural and prepared materials, foundations, piles coffer dams and caissons.

*Structures.*—Dams, retaining walls, abutments, culverts, and arches.

#### Iron and Steel Construction.

*General.*—Stress diagrams for dead and live loads, allowable stresses, classification of framed structures, roofs, loading and design of individual members.

*Bridges.*—Economy of type, parallel girders, bow-strings, arches, suspension bridges, cantilever and swing bridges. Columns.

*Water Engineering.*—Details of systems, of storage and distribution.

*Irrigation.*—Flood waters. River regulation, canals and inland transport.

*Tidal Works.*—Harbours, breakwaters, docks, piers.

General excavating and tunnelling.

### COURSE VIII.

#### MECHANICAL ENGINEERING.

Tuesdays, Wednesdays and Thursdays, at 12.

FEE:—£3 13s. 6d.

Advanced strength of materials, including general properties of stress and strain, composition of stresses, strength of flat plates, strength of thick cylinders, stability of chimneys.

Advanced theory of the Heat Engine, including construction and use of entropy diagrams, Rankine cycle, working out of engine tests. Theory of the gas engine and expression of results, theory of the air compressor, general principles of refrigerating machines.

The transmission of power by air, electricity, water, gas, cost of power, load factor.

### COURSE IX.

#### ELECTRICAL ENGINEERING.

Tuesdays, Wednesdays and Thursdays, at 10.

FEE:—£3 13s. 6d.

One hour each week will be devoted to the working out of designs and calculations of machinery and apparatus preparatory to electrical design in the drawing office.

Electric currents in inductive circuits.

The design of dynamos, motor transformers, and other continuous current machinery. Sparkless commutation. Brushes and holders. Bearings and foundations. Enclosed motors. Electric traction machinery, reduction gear, controllers, and electric brakes. Armature winding of bipolar and multipolar machines. Pre-determination of characteristics. Tests for efficiency and regulation.



Alternating currents. Derivation of fundamental formulæ. Graphical methods. Frequency. Impedance. Angle of lag. Power factor. Measurement of power in alternate current circuits. The Wattmeter. Transformers:—Graphical theory, design and tests for efficiency and regulation. Polyphase currents. Rotating magnetic fields. Synchronous and asynchronous motors. Starting and speed-regulating arrangements.

Central stations for lighting and power distribution. Merits of different systems. Switchboard fittings for low and high tension currents. Regulating resistances. Cables. Meters. Calculation of feeders. Electric traction systems. Earth return. Rail bonding.

Alternating currents in circuits having inductance and capacity. Electrical resonance and oscillations. Use of condensers and reactance coils. Lightning arresters.

Alternators. Polyphase substation plant. Parallel running. Control of power factor.

Electrochemical Action. Heat of combination. Calculation of electromotive force required. Industrial application of electricity in chemistry and metallurgy.

TEXT BOOKS RECOMMENDED.—Steam Engine, Cotterill; Steam Engine, Ewing. Applied Mechanics, Cotterill. Strength of Materials, Ewing. Testing of Materials of Construction, Unwin. Treatise on Bridge Construction, Claxton Fidler. Treatise on Masonry Construction, Baker. Hydraulics; The Article on Hydro-mechanics from the Encyclopedia Britannica, Unwin. Magnets and Electric Currents, Fleming. Dynamo Electric Machinery, Design of Dynamos, Thompson. Electrical Engineering, Slingo and Booker. Alternate Current Working, Hay. Polyphase Electric Current, Thompson.

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## LABORATORY COURSES.

The laboratory course for third year students is arranged to train them in thorough and systematic methods of experimenting, while at the same time they are verifying the more important laws dealt with in the engineering lecture courses.

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## THIRD YEAR.

## GENERAL LABORATORY.

Tuesdays, 2 to 5 throughout the Session.

FEE :—£4 4s.

The accuracy of measuring instruments. The inertia of rotating bodies. The laws of elastic deflection for tension compression, bending and twisting. The influence of bearing metal, lubricant, speed and pressure on the friction of journals. Friction and efficiencies of gearing, toothed wheels, belts, chains, machines and lines of shafting. Behaviour of various materials in the testing machine. The effects of impact on elastic bodies. Cutting forces on tool-points.

*Hydraulics.*—The law of flow in pipes, and losses at bends and contractions. Flow through weirs and orifices. Tests of turbines and pumps. Simple tests of boilers, steam engines and gas engines. Determination of steam or gas consumption and efficiency.

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ELECTRICAL LABORATORY.

*Electrical Engineers* :—Thursdays, 2 to 5, and Fridays, 2 to 5.

FEE :—£6 6s.

*Civil and Mechanical Engineers* :—Thursdays, 2 to 5.

FEE :—£4 4s.

Mapping out magnetic fields. Carrying power of wires. Fuse testing. Exact comparison of electrical instruments. Measurement of resistance and conductivity. Comparative resistance of different coils of armature. Forces on currents in magnetic fields. Torque of motor at rest. Tests on arc and glow lamps. Meter testing and calibration. Capacity of storage cells at different rates of discharge. Measurement of insulation resistance. Tests on the properties of different kinds of direct current motors and dynamos. Determination of efficiency. Separation of

losses in electrical machinery. Speed regulation. Wiring and jointing. Alternating currents, elementary tests.

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#### FOURTH YEAR.

##### MECHANICAL LABORATORY.

*Civil and Mechanical Engineers.*—Fridays, 10 to 5.

FEE:—£9 9s.

*Electrical Engineers.*—Wednesdays, 2 to 5.

FEE:—£5 5s.

Elastic measurements in testing machine, in tension compression, bending and torsion. Tests of riveted joints. Action of impact and repeated stresses on material. Tests of large beams and struts. Hydraulic gradient in long pipes. Flow of water through orifices and weirs. Tests of turbines and pumps and other hydraulic machinery.

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##### HEAT LABORATORY.

*Civil and Mechanical Engineers.*—Mondays, 10 to 5.

*Electrical Engineers.*—Fridays, 10 to 5.

FEE:—£9 9s.

The course will include the experimental study of all the forms of heat engines, and also the properties of the continuous and three phase dynamos.

Attention will be directed to the steam consumption of the slow speed engines, the quick revolution engines, steam turbine, the economy of using superheated steam, the use of variable expansion and feed heating, boiler trials will be made on the water tube and locomotive boilers with different kinds of coal.

Experiment on the efficiency of producers at different rates of working, and the influence of the regeneration will be made.

Comparison of slow speed and quick revolution gas engines, efficiency trials at various loads, influence of water cooling on barrel, cover, piston, exhaust valve, influence of scavenging.

Experiments can also be made on the Diesel oil engine and the refrigerating plant.

## ELECTRICAL LABORATORY.

*Electrical Engineers*:—Mondays, 10 to 5.

FEE:—£9 9s.

*Mechanical Engineers*:—Wednesdays, 2 to 5.

FEE:—£5 5s.

In this Laboratory course, students will obtain practice in making accurate electrical measurements of every description, in testing electric meters, cables, lamps, batteries, samples of iron, &c., and in the testing for efficiency and regulation of all classes of continuous and alternate current machinery.

## SURVEYING.

## THIRD YEAR.

Summer class in the field extending over three weeks in the Summer Vacation.

FEE:—£5 5s.

## MACHINE DRAWING COURSES.

## FIRST YEAR.

## COURSE I.

Wednesdays, 2 to 5.

FEE:—£2 2s.

After a few exercises to familiarise the student with the use of scales and drawing instruments, he proceeds to make drawings of simple joints and machine parts. These drawings which are at first left in pencil, are in every case made from dimensioned freehand sketches, which the student himself makes from a model.

## SECOND YEAR.

## COURSE II.

Thursdays, 2 to 5, and Saturdays, 10 to 1.

FEE:—£4 4s.

The second year course is a direct continuation of the first year one. The same methods are employed, but the models from which the drawings are made are more complex, and the student will eventually proceed to make drawings of complete machines, and also of parts of structures such as complex joints in girder or roof work, supports, foundations, &c.

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### THIRD YEAR.

#### *COURSE III.*

#### MACHINE DESIGN.

Mondays, 2 to 5.

FEE:—£2 2s.

During the first and second years the student has only made drawings from existing machines, but in the third year his drawings are the results of calculations, wherever possible deduced from strength considerations, and in other cases from empirical formulæ based upon approved practice. It is a course in practical design.

The course in general engineering will include lectures on machine design, and the drawings made will be based upon the substance of these lectures.

The course will include :—

*Fastenings.*—Bolts, nuts, keys, cotters, pipes and pipe joints, riveted joints, the civil engineering students giving more attention to the joints that occur in constructional work, and the others to joints in boiler and similar work.

*Machinery of transmission.*—Shafts, couplings, pulleys, bearings, belts, ropes, chains. Friction gearing spur and bevel wheels, helical and screw gearing.

After this may follow problems in which the strength considerations are more complicated, as in axles, journals, crank shafts, where bending and twisting moment diagrams are necessary.

In addition to the above the civil engineering students will take some simple designs bearing upon their special work, such as joints, trussed beams, bridge floors, pin joints, culverts, and sewer sections.

Electrical engineering students will during the third terms be required to make calculations and working drawings of such simple apparatus as the following:— switches and fuses for low and high tension circuits. Distributing boards, electro-magnets, the design of magnetic circuits and choking coils.

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#### FOURTH YEAR.

##### COURSE IV.

##### MACHINE DESIGN.

*Civil Engineers*:—Tuesdays, Wednesdays and Thursdays, 2 to 5.

FEE:—£6 6s.

*Mechanical and Electrical Engineers*:—Tuesdays and Thursdays, 2 to 5.

FEE:—£4 4s.

In the fourth year students largely specialise in their design work, the designs being based upon the special lecture courses.

The designs will be of a more complex character, and in all cases at least one complete design from specification and plans will be required.

The civil engineering students may take up any of the following:—

Masonry dams, arches and culverts. Retaining walls and abutments. Design of separate bridge members. Complete design of roofs and bridges. Water motors and water distribution. Mechanism of docks and locks.

The mechanical engineering students will deal with the following :—

Cylinders for steam and gas engines. Valves and valve gears of various types. Governors, fly-wheels, &c. Complete engines and boilers. Factory arrangements. Machine tools.

Electrical engineering students will, in addition to some of the above, be occupied in making calculations and designing a few of the following :—

Armatures and commutators. Complete shunt or compound dynamo. Induction motor. Series traction motor with controller. Transformers and boosters. Rotary converter. Alternators.

Examples of similar designs are previously worked out in the special course of electrical engineering lectures.

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### WORKSHOP COURSES.

FEES:—First Year, £9 9s.; Second Year, £8 8s.; Third Year, Civil, Mechanical and Electrical, £8 8s.; Fourth Year, Mechanical, £4 4s., Electrical, £4 4s. Summer Vacation Course, £5 5s.

NOTE.—The Workshop is open from 10 to 5, Saturdays 10 to 1, to those who wish to take up Special Courses, at a fee of £1 11s. 6d. per hour per Session.

The course of instruction in the workshop provides for both wood and metal work. In both shops the student has to go through a series of graduated exercises, arranged to familiarise him with all cutting and fitting operations, the properties of various materials, and the correct use of hand and machine tools.

*Exercises in Woodwork.*—Sawing and parallel planing, halved joints, tenon, mortice, dove-tail. Frames involving several joints.

*Lathe Work.*—Turning to eye; pattern turning.

*Pattern Making.*—Glands, brackets, hand wheels, built up wheels with arms, slide valve, &c.

*Exercises in Metal Work.*

*Vice*.—Exercises in chipping and filing plane and curved surfaces.

*Lathe*.—Parallel turning; turning to shoulder; specimens for testing; screw cutting; chuck work.

Turning in cast-iron, wrought-iron, steel and brass.

Drilling and shaping exercises.

*Milling*.—Nuts, T-slots, taps, spiral milling cutters, reamers, &c.

*Fitting*.—Parts of engines and machine tools; face plate; slide rest, &c.

## REQUIREMENTS FOR DEGREES.

### FIRST YEAR.

For candidates in Civil, Mechanical, and Electrical Engineering:—

- (a) Engineering—Drawing and Workshop.
- (b) Mathematics—Course I (Pure); or Course II (Pure);  
and Course I (Applied).
- (c) Physics—Course I, with Laboratory.
- (d) Chemistry—Course I (A), with Laboratory.

### SECOND YEAR.

A. For candidates in Civil Engineering:—

- (a) Engineering—Lecture Course II.  
Exercises.  
Drawing.  
Workshop.
- (b) Mathematics—Course II or III (Pure).  
Course I or II (Applied).
- (c) Geology—Course I, with Laboratory.



**B.** For candidates in Mechanical and Electrical Engineering :—

- (a) Engineering—Lecture Courses I and II.  
Exercises.  
Drawing.  
Workshop.
  - (b) Mathematics—Course II or III (Pure).  
Course I or II (Applied).
  - (c) Metallurgy—Course II.
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*THIRD YEAR.*

**A.** For candidates in Civil Engineering :—

- (a) Engineering—Lecture Courses III, IV, and VI.  
Laboratory (General).  
„ (Electrical).  
Drawing.  
Workshop.
- (b) Mathematics—Course III or IV (Pure).
- (c) Geology—Course II, with Laboratory.
- (d) Surveying (Summer).

**B.** For candidates in Mechanical Engineering :—

- (a) Engineering—Lecture Courses III, V and VI.  
Laboratory (General).  
„ (Electrical).  
Drawing.  
Workshop.
- (b) Mathematics—Course III or IV (Pure).  
Course II (Applied).
- (c) Physics—Course II, Part I.
- (d) Metallurgy—Laboratory.
- (e) Workshop Class (Summer Vacation).

C. For candidates in Electrical Engineering :—

(a) Engineering—Lecture Courses III, V, and VI.

Laboratory (General).

„ (Electrical).

Drawing.

Workshop.

(b) Mathematics—Course III or IV (Pure).

Course II (Applied).

(c) Physics—Course II, Part I.

(d) Workshop Class (Summer Vacation).

#### FOURTH YEAR.

A. For candidates in Civil Engineering :—

Engineering—Lecture Courses VII and VIII.

Laboratory (Mechanical).

„ (Heat).

Drawing.

B. For candidates in Mechanical Engineering :—

Engineering—Lecture Courses VIII and IX.

Laboratory (Mechanical).

„ (Heat).

„ (Electrical).

Drawing.

Workshop.

C. For candidates in Electrical Engineering :—

Engineering—Lecture Courses VIII and IX.

Laboratory (Mechanical).

„ (Heat).

„ (Electrical).

Drawing.

Workshop.

# **FIRST YEAR COURSE. CIVIL, MECHANICAL AND ELECTRICAL.**

235

| SUBJECTS.                 | CLASS FEES. | CLASS HOURS. |       |       |        |        |       |
|---------------------------|-------------|--------------|-------|-------|--------|--------|-------|
|                           |             | Mon.         | Tues. | Wed.  | Thurs. | Fri.   | Sat.  |
| <i>Membership Fee</i> ... |             |              |       |       |        |        |       |
| ENGINEERING—              | £1 1 0      |              |       |       |        |        |       |
| Drawing ...               | 2 2 0       | ...          | ...   | 2—5   | ...    | ...    | ...   |
| Workshop...               | 9 9 0       | ...          | 2—5   | ...   | 2—5    | ...    | 10—1  |
| <i>MATHEMATICS—</i>       |             |              |       |       |        |        |       |
| Course I. (Pure) or       | 4 4 0       | 12.30        | 11.30 | ...   | 11.30  | 12.30  | ...   |
| Course II. (Pure) and     | 4 4 0       | 10.30        | ...   | 10.30 | ...    | 10.30  | ...   |
| Course I. (Applied)       | 4 4 0       | ...          | 10.30 | ...   | 10.30  | ...    | 10.30 |
| <i>PHYSICS—</i>           |             |              |       |       |        |        |       |
| Lectures, Course I.       | 5 15 6 {    | 11.30        | ...   | 11.30 | ...    | 11.30  | ...   |
| Laboratory                |             | 2.30-4.30    | ...   | ...   | ...    | ...    | ...   |
| <i>CHEMISTRY—</i>         |             |              |       |       |        |        |       |
| Lectures, Course I. (A.)* | 4 4 0       | 9.30         | 9.30  | 9.30  | 9.30   | ...    | ...   |
| Laboratory †              | 2 2 0       | ...          | ...   | ...   | ...    | 2.30—5 | ...   |
| <i>Caution Money</i> ..   | 1 0 0       |              |       |       |        |        |       |

\* Winter and Spring Terms only.

† Winter Term only.

COMPOSITION FEE :— £28 7s.

## CIVIL ENGINEERING.

## SECOND YEAR COURSE.

| SUBJECTS.                     | FEES.  | CLASS HOURS. |            |       |            |       |      |
|-------------------------------|--------|--------------|------------|-------|------------|-------|------|
|                               |        | Mon.         | Tues.      | Wed.  | Thurs.     | Fri.  | Sat. |
| <i>Membership Fee</i> ..      |        |              |            |       |            |       |      |
| £1 1 0                        |        |              |            |       |            |       |      |
| ENGINEERING—                  |        |              |            |       |            |       |      |
| Lectures, Course II. ..       | 3 13 6 | ...          | 12.0       | ...   | 12.0       | ...   | 11.0 |
| Exercises ... ..              | 3 13 6 | ...          | 2—5        | ...   | ...        | ...   | ...  |
| Drawing ... ..                | 4 1 0  | ...          | ...        | ...   | 2—5        | ...   | 10—1 |
| Workshop ... ..               | 8 8 0  | 2—5          | ...        | ...   | ...        | 2—5   | ...  |
| MATHEMATICS—                  |        |              |            |       |            |       |      |
| Course II. (Pure) ... ..      | 4 4 0  | 10.30        | ...        | 10.30 | ...        | 10.30 | ...  |
| Course I. (Applied) or ... .. | 4 4 0  | 9.30         | ...        | 9.30  | ...        | 9.30  | ...  |
| Course III. (Pure) ... ..     | 4 4 0  | 9.30         | ...        | 9.30  | ...        | 9.30  | ...  |
| Course II. (Applied) ... ..   | 4 4 0  | 10.30        | ...        | 10.30 | ...        | 10.30 | ...  |
| GEOLOGY—                      |        |              |            |       |            |       |      |
| Course I. ... ..              | 5 5 0  | ...          | 9.30—11.30 | ...   | 9.30—11.30 | ...   | 9.30 |

COMPOSITION FEE :—£33 12s.

# SECOND YEAR COURSE.

# MECHANICAL AND ELECTRICAL.

| SUBJECTS.                    | FEES.  | CLASS HOURS. |       |       |        |       |      |
|------------------------------|--------|--------------|-------|-------|--------|-------|------|
|                              |        | Mon.         | Tues. | Wed.  | Thurs. | Fri.  | Sat. |
| <i>Membership Fee</i> ...    |        |              |       |       |        |       |      |
| ENGINEERING—                 |        |              |       |       |        |       |      |
| Lectures, Course I. ...      | £1 1 0 | ...          | 10.0  | ...   | 10.0   | ...   | ...  |
| " Course II. ...             | 2 12 6 | ...          | 12.0  | ...   | 12.0   | ...   | 11.0 |
| Exercises ...                | 3 13 6 | ...          | 2 5   | ...   | ...    | ...   | ...  |
| Drawing ...                  | 3 13 6 | ...          | ...   | ...   | 2 5    | ...   | 10 1 |
| Workshop... ..               | 4 4 0  | 2 5          | ...   | ...   | ...    | 2 5   | ...  |
| METALLURGY, Course II....    |        |              |       |       |        |       |      |
|                              | 8 8 0  | 11.30        | ...   | 11.30 | ...    | ...   | ...  |
| MATHEMATICS—                 |        |              |       |       |        |       |      |
| Course II. (Pure)... ..      | 3 3 0  | 10.30        | ...   | 10.30 | ...    | 10.30 | ...  |
| Course I. (Applied) or... .. | 4 4 0  | 9.30         | ...   | 9.30  | ...    | 9.30  | ...  |
| Course III. (Pure) ... ..    | 4 4 0  | 9.30         | ...   | 9.30  | ...    | 9.30  | ...  |
| Course II. (Applied) ... ..  | 1 1 0  | 10.30        | ...   | 10.30 | ...    | 10.30 | ...  |

COMPOSITION Fee: £33 12s.

**THIRD YEAR COURSE. CIVIL ENGINEERING STUDENTS.**

| SUBJECTS.                         | FEES.     | CLASS HOURS. |       |       |        |       |      |
|-----------------------------------|-----------|--------------|-------|-------|--------|-------|------|
|                                   |           | Mon.         | Tues. | Wed.  | Thurs. | Fri.  | Sat. |
| <i>Membership Fee</i> ... £1 1 0  |           |              |       |       |        |       |      |
| ENGINEERING—                      |           |              |       |       |        |       |      |
| Lectures—General, Course III. ... | 3 13 6    | ...          | 10.0  | ...   | 10.0   | ...   | 10.0 |
| " Civil, " IV. ...                | 2 12 6    | ...          | 11.0  | ...   | ...    | ...   | 11.0 |
| " Electrical, " VI. ...           | 3 13 6    | ...          | 12.0  | ...   | 12.0   | ...   | 12.0 |
| Laboratory—General ...            | 4 4 0     | ...          | 2—5   | ...   | ...    | ...   | ...  |
| " Electrical ...                  | 4 4 0     | ...          | ...   | ...   | 2—5    | ...   | ...  |
| Drawing ...                       | 2 2 0     | 2—5          | ...   | 2—5   | ...    | 2—5   | ...  |
| Workshop ...                      | 8 8 0     | ...          | ...   | ...   | ...    | ...   | ...  |
| Surveying (Summer Vacation) ...   | 5 5 0     | ...          | ...   | ...   | ...    | ...   | ...  |
| MATHEMATICS—                      |           |              |       |       |        |       |      |
| Course III. or IV. (Pure) ...     | 4 4 0     | 9.30         | ...   | 9.30  | ...    | 9.30  | ...  |
| GEOLOGY—                          |           |              |       |       |        |       |      |
| Lectures, Course II. ...          | } 5 5 0 { | 10.30        | ...   | 10.30 | ...    | 10.30 | ...  |
| Laboratory, " ...                 |           | to           | ...   | to    | ...    | * to  | ...  |
| Surveying Class (Summer). ...     |           | 12.30        | ...   | 12.30 | ...    | 12.30 | ...  |

COMPOSITION FEE:—£42.

\* All day on Fridays during the Summer.

**THIRD YEAR COURSE.      MECHANICAL ENGINEERING STUDENTS.**

| SUBJECTS.                        | Fees,<br>£1 1 0 | CLASS HOURS. |       |       |        |       |      |
|----------------------------------|-----------------|--------------|-------|-------|--------|-------|------|
|                                  |                 | Mon.         | Tues. | Wed.  | Thurs. | Fri.  | Sat. |
| <i>Membership Fee</i> ...        |                 |              |       |       |        |       |      |
| ENGINEERING—                     | 3 13 6          | ...          | 10.0  | ...   | 10.0   | ...   | 10.0 |
| Lectures—General, Course III.    | 2 12 6          | ...          | 11.0  | ...   | 11.0   | ...   | ...  |
| " Mechanical " V.                | 3 13 6          | ...          | 12.0  | ...   | 12.0   | ...   | 12.0 |
| " Electrical " VI.               | 4 4 0           | ...          | 2—5   | ...   | ...    | ...   | ...  |
| Laboratory—General ...           | 4 4 0           | ...          | ...   | ...   | 2—5    | ...   | ...  |
| " Electrical ...                 | 2 2 0           | 2 5          | ...   | ...   | ...    | ...   | ...  |
| Drawing ...                      | 8 8 0           | 2 5          | ...   | 2—5   | ...    | ...   | ...  |
| Workshop ...                     | 5 5 0           | ...          | ...   | ...   | ...    | ...   | ...  |
| Workshop Class (Summer Vacation) |                 |              |       |       |        |       |      |
| MATHEMATICS—                     | 4 4 0           | 9.30         | ...   | 9.30  | ...    | 9.30  | ...  |
| Course III or IV (Pure)          | 4 4 0           | 10.30        | ...   | 10.30 | ...    | 10.30 | ...  |
| Course II (Applied)              |                 |              |       |       |        |       |      |
| PHYSICS—                         | 3 13 6          | 11.30        | ...   | 11.30 | ...    | 11.30 | ...  |
| Course II.                       |                 |              |       |       |        |       |      |
| METALLURGY—                      | 2 12 6          | ...          | ...   | ...   | ...    | ...   | ...  |
| Laboratory ...                   | 1 0 0           | ...          | ...   | ...   | ...    | 2 5   | ...  |
| <i>Caution Money</i> ...         |                 |              |       |       |        |       |      |

COMPOSITION FEE:—£12.

**THIRD YEAR COURSE.      ELECTRICAL ENGINEERING STUDENTS.**

| SUBJECTS.                          | FEES.  | CLASS HOURS. |       |       |        |       |      |
|------------------------------------|--------|--------------|-------|-------|--------|-------|------|
|                                    |        | Mon.         | Tues. | Wed.  | Thurs. | Fri.  | Sat. |
| <i>Membership Fee ..</i>           |        | £1 1 0       |       |       |        |       |      |
| <b>ENGINEERING—</b>                |        |              |       |       |        |       |      |
| Lectures—General, Course III.      | 3 13 6 | ...          | 10.0  | ...   | 10.0   | ...   | 10.0 |
| " Mechanical " V.                  | 2 12 6 | ...          | 11.0  | ...   | 11.0   | ...   | ...  |
| " Electrical " VI.                 | 3 13 6 | ...          | 12.0  | ...   | 12.0   | ...   | 12.0 |
| Laboratory—General ...             | 4 4 0  | ...          | 2—5   | ...   | ...    | ...   | ...  |
| " Electrical ...                   | 6 6 0  | ...          | ...   | ...   | 2—5    | 2—5   | ...  |
| Drawing ...                        | 2 2 0  | 2—5          | ...   | ...   | ...    | ...   | ...  |
| Workshop ...                       | 8 8 0  | ...          | ...   | 2—5   | ...    | ...   | 10—1 |
| Workshop Class (Summer Vacation) ) | 5 5 0  | ...          | ...   | ...   | ...    | ...   | ...  |
| <b>MATHEMATICS—</b>                |        |              |       |       |        |       |      |
| Course III. or IV. (Pure) ...      | 1 4 0  | 9.30         | ...   | 9.30  | ...    | 9.30  | ...  |
| Course II. (Applied) ...           | 4 4 0  | 10.30        | ...   | 10.30 | ...    | 10.30 | ...  |
| <b>PHYSICS—</b>                    |        |              |       |       |        |       |      |
| Course II. ...                     | 3 13 6 | 11.30        | ...   | 11.30 | ...    | 11.30 | ...  |

COMPOSITION FEE :—£42.



**FOURTH YEAR COURSE. CIVIL ENGINEERING STUDENTS.**

| SUBJECTS.                   | Fees.  | CLASS HOURS. |       |      |        |           |
|-----------------------------|--------|--------------|-------|------|--------|-----------|
|                             |        | Mon.         | Tues. | Wed. | Thurs. | Fri. Sat. |
| <i>Membership Fee</i> ...   | £1 1 0 |              |       |      |        |           |
| <b>ENGINEERING—</b>         |        |              |       |      |        |           |
| Lectures—Civil, Course VII. | 3 13 6 | ...          | 10.0  | 10.0 | 10.0   | ...       |
| " Mechanical, Course VIII.  | 3 13 6 | ...          | 12.0  | 12.0 | 12.0   | ...       |
| Laboratory—Mechanical       | 9 9 0  | ...          | ...   | ...  | ...    | 10—5      |
| " Heat                      | 9 9 0  | 10—5         | ...   | ...  | ...    | ...       |
| Drawing                     | 6 6 0  | ...          | 2—5   | 2 5  | 2—5    | ...       |

COMPOSITION FEE :—£31 10s. for the present year.

**FOURTH YEAR COURSE.                      MECHANICAL ENGINEERING STUDENTS.**

| SUBJECTS.                     | FEES.  | CLASS HOURS. |       |      |        |      |      |
|-------------------------------|--------|--------------|-------|------|--------|------|------|
|                               |        | Mon.         | Tues. | Wed. | Thurs. | Fri. | Sat. |
| <i>Membership Fee</i> ..      | £1 1 0 |              |       |      |        |      |      |
| ENGINEERING--                 |        |              |       |      |        |      |      |
| Lectures--                    |        |              |       |      |        |      |      |
| Mechanical, Course VIII. .... | 3 13 6 | ...          | 12.0  | 12.0 | 12.0   | ...  | ...  |
| Electrical, " IX. ....        | 3 13 6 | ...          | 10.0  | 10.0 | 10.0   | ..   | ...  |
| Laboratory—Mechanical ....    | 9 9 0  | ...          | ...   | ...  | ...    | 10—5 | ...  |
| " Heat ...                    | 9 9 0  | 10—5         | ..    | ...  | ...    | ...  | ...  |
| " Electrical ...              | 5 5 0  | ...          | ...   | 2—5  | ..     | ...  | ...  |
| Drawing ...                   | 4 4 0  | ...          | 2—5   | ...  | 2—5    | ...  | ...  |
| Workshop ...                  | 4 4 0  | ...          | ...   | ...  | ...    | ...  | 10—1 |

COMPOSITION FEE :—£36 15s. for the present year.

## FOURTH YEAR COURSE. ELECTRICAL ENGINEERING STUDENTS.

| SUBJECTS.                    | FEES.  | CLASS HOURS. |       |      |        |      |      |
|------------------------------|--------|--------------|-------|------|--------|------|------|
|                              |        | Mon.         | Tues. | Wed. | Thurs. | Fri. | Sat. |
| <i>Membership Fee</i> ...    | £1 1 0 |              |       |      |        |      |      |
| ENGINEERING—                 |        |              |       |      |        |      |      |
| Lectures—                    |        |              |       |      |        |      |      |
| Mechanical, Course VIII. ... | 3 13 6 | ...          | 12.0  | 12.0 | 12.0   | ...  | ...  |
| Electrical, " IX. ...        | 3 13 6 | ...          | 10.0  | 10.0 | 10.0   | ...  | ...  |
| Laboratory—Mechanical        | 5 5 0  | ...          | ...   | 2 5  | ...    | ...  | ...  |
| " Heat ...                   | 9 9 0  | ...          | ...   | ...  | ...    | 10 5 | ...  |
| " Electrical                 | 9 9 0  | 10 5         | ...   | ...  | ...    | ...  | ...  |
| Drawing ...                  | 4 4 0  | ...          | 2 5   | ...  | 2 5    | ...  | ...  |
| Workshop ...                 | 4 4 0  | ...          | ...   | ...  | ...    | ...  | 10 1 |

COMPOSITION FEE :—£36 15s. for the present year.

## METALLURGY.

*Professor:* THOMAS TURNER, M.Sc.; A.R.S.M., F.I.C.

*Lecturer and Instructor in Assaying:* O. F. HUDSON,  
A.R.C.S.

*Assistant Lecturer and Demonstrator:* GUY D. RICKETTS,  
M.A. (Cantab.), A.R.S.M. (Lond.)

The Metallurgical Department of the University of Birmingham is intended both to provide instruction for those engaged in or connected with the staple metal industries of the Midlands, and also to train men who propose to follow a metallurgical career in the colonies or in any other part of the world. The number and variety of the metallurgical undertakings of the district afford to students who wish to obtain a general metallurgical training an unusually good opportunity of seeing important processes in actual operation.

The course of study, which at present extends over three years, is intended to meet the requirements of

1. Metallurgists, who devote the greater part of their time to metallurgy.
2. Metallurgical chemists, who specialize in chemistry.
3. Metallurgical engineers, who devote most of their time to engineering.
4. Mining and Geological students, who follow the courses prescribed in their respective departments.
5. Dental students.
6. Others interested in Metallurgy.

It is probable that a fourth year's work will be provided as soon as the new department at Bournbrook is completed. This additional year will be required in order to allow students to take advantage of the special facilities offered in the laboratories, the steel-melting house, and the roasting and smelting plants.

The outside Metallurgical building, situated near the power house, is already built and equipped, and will be available for instruction throughout the session. It includes a 2-ton new form Siemens' steel furnace; a water jacketed blast furnace for copper or lead ores;

roasting furnaces ; cupellation furnace ; chlorination and leaching plant for gold and silver ores ; a steel and brass foundry ; and an electric smelting laboratory. Immediately adjacent, though in separate buildings, are the iron foundry and the smith's shop of the Engineering Department.

## LECTURE COURSES.

### I.—JUNIOR COURSE.

A Course of twenty lectures will be delivered on Mondays at 4 during the Winter and Spring Terms. During the Summer term a Practical Class is held in the Laboratory on Saturday mornings, from 10 to 1 for Dental students, or on Tuesdays from 2 to 5 for others. This Course is intended to serve as an introduction to Metallurgy, and will cover the ground required by students of Dentistry.

#### SYLLABUS.

##### PART I.

Physical, Mechanical, Chemical, and Electrical Properties of the Common Metals. Properties of Alloys. Melting, Casting, and Working of Metals. Varieties of Furnaces. Furnace Materials. Slags and Fluxes. Metallurgical Terms. Fuel. Gaseous Fuel. Gas Furnace.

##### PART II.

Preparation, Properties and Uses of the following :—

Gold, Silver, Mercury, Copper, Tin, Zinc, Lead, Iron, Platinum, Iridium, Palladium, Cadmium, Bismuth, Aluminium, and Nickel, together with their chief alloys and amalgams.

**FEE FOR THE COURSE:** Lectures and Laboratory, £2 2s.

**TEXT BOOKS RECOMMENDED :—**

Huntington and Macmillan's "Metals" (Longman).  
Smith's "Dental Metallurgy."

### II.—GENERAL COURSE.

This Course is intended to give a general outline of the subject, and is attended by Metallurgical and Engineering students in their second year. The Lectures are delivered on Mondays and Wednesdays at 11.30 throughout the Session.

## SYLLABUS.

(a) *Introductory*.—Physical, Mechanical, and Chemical Properties of Metals. Nature of Alloys. Metallurgical Terms and Processes. Classification of Furnaces. Furnace Materials :—Acid, Basic, and Neutral. Composition of Fire Clay. Manufacture and Testing of Fire-bricks and Crucibles. Slags and Fluxes. Composition and Character of Slags. Utilization of Slag. Calculation of Furnace Changes. Physical and Chemical Properties of Fuel. Principles of Combustion. Calorific Power and Intensity. Calorimeters. Pyrometers and Pyrometry. Gaseous Fuel. Preparation of Coke, Charcoal, and Patent Fuels.

(b) *Iron and Steel*.—Composition, Characters, and Preliminary Treatment of Iron Ores. Manufacture of Cast Iron. The Blast Furnace. Details of Construction and Working. Furnace Burdens. Subsidiary Appliances. Theory of the Blast Furnace. Chemical and Mechanical Properties of Cast Iron. Foundry Practice. Manufacture of Wrought Iron. Chemistry of the Puddling Furnace. Properties of Wrought Iron. Manufacture and Properties of Steel. Puddled, blister, shear, and crucible steel. Bessemer and Siemens' Steel. Basic Process. Other important Steel Processes. Chemical Composition and Mechanical Testing of different varieties of Iron and Steel.

(c) *Metals and Alloys*.—Preparation, Properties, and Principal Alloys of Copper, Zinc, Tin, Antimony, Bismuth, Nickel, Aluminium, Gold, Silver, Lead, Mercury, Platinum, Iridium, and Palladium. Principles of Electro-Metallurgy.

FEE for the Course :—£3 3s.

TEXT BOOKS RECOMMENDED :—

Roberts-Austen's Introduction to Metallurgy. (Griffin.)

Turner's Iron. (Griffin.)

For Electro-Metallurgical Work :—

McMillan's Electro-Metallurgy (Griffin).

It will be necessary to assume that students taking this Course possess some knowledge of Chemistry and Physics.

## III.—SENIOR COURSE.

A Course of about thirty Lectures for senior students is given each session. The class will meet throughout the session on Tuesday afternoons, at 4, or by arrangement.

The course will be divided into three separate portions, each of ten lectures, the subjects being chosen to meet the requirements of the class, a selection being made from the following :—

1. Fuel, Pyrometry, Calorimetry, Combustion, Gaseous Fuel.
2. Iron and Steel ; including microscopic examination, heat treatment, &c.
3. The Metallurgy of Gold and Silver.
4. Copper, Zinc, Lead, Tin, and other Metals.
5. Alloys—Their preparation, constitution and applications.
6. Foundry practice, including Iron, Steel, and other metals and alloys.

FEE :—£1 11s. 6d.

TEXT-BOOKS RECOMMENDED—Collins' Silver (Griffin). Harbord's Steel (Griffin). Rose's Gold (Griffin). Osmond's Metallurgy (Griffin).

#### *PRACTICAL METALLURGY.*

Pending the erection of the University buildings on the Bournbrook site, arrangements have been entered into with the Committee of the Birmingham Municipal Technical School for the teaching to be given in the Laboratories and Lecture Halls of the Technical School, which have been specially designed and equipped for Metallurgical instruction. Practical work will also be conducted throughout the session in the new smelting department at Bournbrook.

The course of study in the laboratories is designed with the object of teaching the properties of the materials used by the metallurgist, and the changes which take place during the production of metals and alloys.

Instruction is given in the properties of metals, alloys, ores, slags, and other metallurgical products ; in assaying ; in the reactions which underlie various metallurgical processes ; and in pyrometry and metallography.

All students work independently, and as far as practicable at the hours best suited to their arrangements. Special facilities will be offered to proprietors, managers, and others engaged in technical or professional work, who desire either to study the technology of their subject, or to work out improvements. Students may commence work in the laboratory at any time. Senior students are

encouraged to undertake research work bearing upon their intended future avocations.

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## Syllabus of Practical Metallurgy and Assaying.

### GENERAL COURSE LABORATORY.—PART I.

*Examination of Fuel.*—Commercial Analysis, including Ash, Moisture, Sulphur, Coke, and Calorific Power.

*Furnace Materials.*—Examination and testing of fire-clay.

*Metals and Alloys.*—Properties of Copper, Zinc, Tin, Lead, &c. Preparation of different varieties of Brass, Bronze, &c.

*Oxidation and Reduction.*—Experiments illustrating the use of oxidising and reducing agents in metallurgy. Lead Assay.

*Slags and Fluxes.*—Experiments illustrating the composition, formation, and melting points of slags.

*Iron Assay.*—Assay of Iron Ores for Iron, Silica, Phosphorus, Moisture, and Loss on Ignition.

*Silver.*—Determination of Muffle Temperatures. Experiments with Cupellation. Preparation of Silver Alloys. Assay of Silver Bullion and Silver Ores.

*Gold.*—Assay of Gold Ores, Lemel, and Bullion.

### GENERAL COURSE LABORATORY.—PART II.

Students select from the following, among other, subjects of further instruction.

*Fuel.*—Complete Analysis of Coal, Coke, &c. Gas Analysis as applied to metallurgical operations.

*Pyrometry.*—Measurements of High Temperatures.

*Calorimetry.*—Use of more accurate Calorimeters.

*Furnace Materials.*—Assay and Analysis of Clay, and other fire-resisting materials.



*Iron and Steel.*—Complete Analysis of Iron Ores, Cast Iron, Wrought Iron, and Steel. Preparation and Properties of various Irons, Steels, and Ferro-Alloys.

*Copper.*—Assay of Copper Ores; Preparation, Properties, and Analysis of Brass, Bronze, German Silver, and other Copper Alloys.

*Tin, Lead, Zinc, Antimony, Nickel, Cobalt, and Aluminium.*—Assay of Ores and Analysis of Commercial Metals and of most important Alloys.

*Electro-Metallurgy.*—Electro-deposition of Gold, Silver, Copper, Brass, and Nickel. Electro-refining of Metals, &c.

*Microscopy.*—Preparation of Samples and Examination of Metals under the Microscope. Micro-Photography.

## SPECIAL COURSE.

### FURNACE AND SMELTING SECTION.

A Practical Summer School, extending over about a month, will be arranged at the end of the Session, to enable students to take part in the working of the Siemens furnace, the blast furnace, the iron foundry, and other appliances. The plant will also be available for teaching and experimental work throughout the Session.

#### LABORATORY FEES:—

|                | All day.        | Three hours<br>per day. | Three hours<br>per day;<br>three days a<br>week. |
|----------------|-----------------|-------------------------|--------------------------------------------------|
|                | <i>Guineas.</i> | <i>Guineas.</i>         | <i>Guineas.</i>                                  |
| One Term ...   | 7               | 4½                      | 2½                                               |
| Two Terms ...  | 13              | 8½                      | 5                                                |
| Three Terms... | 18              | 12                      | 6½                                               |

For the Furnace and Smelting Section the fee for the Summer School will be £4 4s. for Students of the University. For external students the fee is 25s. per week, with a minimum of £5 5s. The accommodation in this Section is limited, and only such students will be admitted as are able to satisfy the Professor that their

previous training has been such as will enable them to profit by the instruction.

For Engineering students the fee for the Practical Class throughout the session, three hours weekly, is £2 12s. 6d.

Gas, fuel, water, and ordinary reagents are supplied by the University, but students must provide themselves with a small set of Apparatus; also with crucibles, and with materials when large quantities are required.

TEXT-BOOKS RECOMMENDED—Beringer's Text-Book of Assaying (Griffin). Blair and Ibbotson—Analysis of Steel Works Materials (Longmans). Howe's Metallurgical Laboratory Notes (Souvereur and Whiting.)

### Excursions.

Excursions to Metallurgical Works in the neighbourhood of Birmingham will be arranged from time to time as in previous years.

### TIME TABLE.

| METALLURGY.                                      | Mon.  | Tues. | Wed.  | Thur. | Fri. | Sat. |
|--------------------------------------------------|-------|-------|-------|-------|------|------|
| Lectures—                                        |       |       |       |       |      |      |
| Course I. ....                                   | 4-0   | ...   | ...   | ...   | ...  | ...  |
| „ II. ....                                       | 11-30 | ...   | 11.30 | ...   | ...  | ...  |
| „ III. ....                                      | ...   | 4-0   | ...   | ...   | ...  | ...  |
| Practical Classes—                               |       |       |       |       |      |      |
| Engineering Students                             | ...   | ...   | ...   | ...   | 2-5  | ...  |
| Junior Course ...<br>( <i>Summer Term only</i> ) | ...   | 2-5   | ...   | ...   | ...  | ...  |
| Do. Dental .....                                 | ...   | ...   | ...   | ...   | ...  | 10-1 |
| Laboratory—open ...                              | 10-5  | 10-5  | 10-5  | 10-5  | 10-5 | 10-1 |

*REQUIREMENTS FOR DEGREES.*

Candidates for the Degree of B.Sc. in Metallurgy must be matriculated students of the University before commencing their degree course, and must, after matriculation, attend the prescribed courses of study for at least three academic years.

The work for the first year, or Intermediate Examination, is as follows :—

Mathematics, Course I. (Pure).

Physics, Lectures, Course I. and Laboratory.

Chemistry, Lectures, Course I. (A) and Laboratory.

Engineering, Descriptive, Course I. (A and B), and Workshop.

Metallurgy, Junior Course, Lectures and Laboratory.

The subjects of the Second Year Metallurgical Course are as follows :

*Metallurgy.* Lectures (General Course), two lectures weekly.

Laboratory. At least nine hours, by arrangement.

*Engineering.* Lectures. Course II., two lectures weekly.

Drawing. Three hours weekly.

Workshop. Three hours weekly.

*Chemistry.* Laboratory. Nine hours weekly, by arrangement.

*Geology.* Lectures (Course I.) Three lectures and two hours laboratory, weekly.

In the third year students who take Metallurgy as their principal subject in the degree examination attend the Metallurgical Lectures (Senior Course) and devote not less than twelve hours per week to Practical Metallurgy (General Course, Part II.).

They must select their subsidiary subjects (see General Regulations for Degrees in Science, page 152) from the following :—Engineering, Mining, Chemistry, Geology, Physics, Mathematics.

Students who take Metallurgy as their principal subject must in addition afford satisfactory evidence that they have, during their course of study regularly attended, for a period at least equal to a University term, at some metallurgical work or works previously approved by the Professor. They will be expected to give full and accurate descriptions of the plant and of the processes in which they have taken part, and in the final examination marks will be awarded for this part of the work. Attendance can be conveniently made during University vacations, or in connection with the Summer School in Metallurgy.

Students who propose to take Metallurgy as a subsidiary subject (Metallurgical Chemists or Metallurgical Engineers) take the Senior Metallurgical Lectures in their third year, and a portion of Practical Metallurgy (Part II.) selected after consultation with the Professor under whom they are principally engaged.

Mining and Geological students take the General Course Metallurgical Lectures, and also Practical Metallurgy (General Course, Part I.) together with such portions of Part II. as may be of special importance in any particular case.

Engineering Students take Metallurgy (Lectures, General Course), in their second year, and a Special Laboratory Class in their third year.

Dental students take the Junior Course, Lectures and Laboratory.

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FIRST YEAR COURSE FOR DEGREE IN METALLURGY.

253

| SUBJECTS.                                 | FEES.    | CLASS HOURS. |             |             |             |             |
|-------------------------------------------|----------|--------------|-------------|-------------|-------------|-------------|
|                                           |          | Monday.      | Tuesday.    | Wednesday.  | Thursday.   | Friday.     |
| METALLURGY—<br>Membership Fee ..          | £1 1 0   |              |             |             |             |             |
| Lectures, Course I. ....                  | 2 2 0 {  | 4.0—5.0      | ...         | ...         | ...         | ...         |
| Laboratory ... ..                         |          | ...          | 2.0—5.0     | ...         | ...         | ...         |
| ( <i>Summer Term only</i> )               |          |              |             |             |             |             |
| Caution Money ...                         | 1 0 0    |              |             |             |             |             |
| MATHEMATICS—<br>Course I. (Pure) ... ..   | 1 1 0    | 12.30—1.30   | 11.30—12.30 | ...         | 11.30—12.30 | 12.30—1.30  |
| PHYSICS—<br>Course I. ... ..              | 5 15 6 { | 11.30—12.30  | ...         | 11.30—12.30 | ...         | 11.30—12.30 |
| Laboratory ... ..                         |          | 2.30—1.30    | ...         | ...         | ...         | ...         |
| CHEMISTRY—<br>Lecture, Course I. (A.) ... | 4 4 0    | 9.30—10.30   | 9.30—10.30  | 9.30—10.30  | 9.30—10.30  | ...         |
| ( <i>Winter and Spring Terms only</i> )   |          |              |             |             |             |             |
| Laboratory ... ..                         | 2 2 0    | ...          | ...         | ...         | ...         | 2.30—5.0    |
| ENGINEERING—<br>Course I. ... ..          | 2 12 6   | ...          | 10.0—11.0   | ...         | 10.0—11.0   | ...         |
| Workshop ... ..                           | 3 3 0    | ...          | ...         | ...         | 2.0—5.0     | ...         |
|                                           | £26 1 0  |              |             |             |             |             |

## MINING.

### COAL MINING AND METAL MINING.

*Professor:* R. A. S. REDMAYNE, M.Sc. ; M.I.M.E. ;  
M.A.I.M.E. ; F.G.S.

*Lecturer and Demonstrator in Surveying:* E. H. ROBERTON,  
M.Sc. ; B.A., M.I.M.E.

The Mining Department of the University of Birmingham has been founded by the University authorities in order to meet the requirements of the large mining community of the Midlands, and at the same time to afford mining men from other parts of Great Britain and the Colonies theoretical and practical instruction in the various branches of mining.

Situate as Birmingham is in the centre of England and Wales, with Coalfields both in its immediate neighbourhood and within a short journey by rail, the University mining department should form the natural centre for all those interested in mining matters in the English Midlands. Especially will this be the case as regards Coal Mining, for the student in this branch will have an almost unrivalled opportunity for inspection and practical illustration among the many and varied coalfields of the Midlands generally.

Further, as the Mining Department of the University will be furnished with the materials and apparatus for the teaching of Metal mining, this will also form a natural and important feature of the mining curriculum. Here, again, the central position of Birmingham is most advantageous. The student will be able, during special weeks in the year, to visit at no great cost the metal mining districts of Cornwall, Wales, and elsewhere, and study the practice of metal mining on the spot.

The time of the mining students at the University will not be devoted specially to theoretical work ; much of it will be of a thoroughly practical character. There will be weekly visits to the mines of the neighbourhood, and a month or five weeks will be devoted by the students each year, in company with the Professor, to

the inspection and study of some group of metal and other mines in Britain or abroad (Summer Mining School).

The courses here sketched out have been so arranged as to meet the requirements of those who intend to become:—

1.—Practising and Consultative Mining Engineers, where a thorough knowledge of mining *in all its branches* is necessary;

2.—Colliery Managers;

3.—Managers of Metal Mines;

4.—Teachers of Mining;

5.—Mine Surveyors;

6.—Land and Estate Agents;

7.—Landowners, owners of Collieries, and those generally interested in mines and quarries.

#### CERTIFICATE OR DIPLOMA IN MINING.

Students who desire to obtain a certificate in Coal Mining, such as to fit them for colliery management, must take the lecture and laboratory courses laid down for the first and second years, together with certain lecturing and laboratory courses in the allied sciences. The complete courses are described on page 257.

They must further have practical experience in a mine for a couple of months at least in each year, or have had a minimum of four months of such experience prior to entering on the Diploma Course, to enable them to take the Diploma in Mining.

#### SUMMER SCHOOL.

A month or five weeks in every long vacation will be devoted to visiting and making a thorough inspection of the mines in some metalliferous or coal mining district either in Britain or abroad. The students will be required to take detailed daily notes and to furnish a full report upon the termination of the month or five weeks' work. This practical course is open to other than University Students on the payment of a fee of £5 5s. The fee charged to University Students being £3 3s.

## B.Sc. DEGREE IN MINING.

In which is comprehended the Diploma in Mining.

Candidates for a Degree in Mining are required to be matriculated in the Faculty of Science before entering on the courses of study for the degree. After matriculation, students are required to attend courses of study in mining and the allied sciences, for a period of at least three years. In order to obtain the Degree of B.Sc. in Mining, candidates will also have to attend two out of the three annual Summer Mining Schools, or to attend 75 per cent. at least of the occasional visits to mines in the neighbourhood.

NOTE.—A distinction will be made between Coal and Metal Mining Students when marking examination papers.

CERTIFICATES OF COMPETENCY UNDER THE COAL MINES  
REGULATION ACT.

The clause of the Coal Mines Regulation Act, regulating the granting of Certificates of Competency to intending Colliery Managers was on June 30th, 1903, so amended as to allow of a *diploma* gained after a course of study of at least two years in scientific and mining subjects, at a University, University College, Mining School or other Educational Institution approved of by a Secretary of State, or a *degree* gained at any University so approved of, which includes study in mining and allied sciences, being accepted instead of two of the five years practical experience otherwise imperative. The regulations for the Diploma in Mining and the B.Sc. degree in Mining of the University have been accepted by the Secretary of State for the Home Department as qualifying for the foregoing privilege.

## LABORATORY PRACTICE.

The courses also include Laboratory practice for those who have already passed through a Mining course at other Mining Schools.



*COURSES OF STUDY.*

The following curriculum is provisional, and may be hereafter altered or extended as experience of the wants and requirements of mining students and the mining public may determine.

These mining courses, extending over three years, are based on those at present existing at the principal European and American Mining Schools, and comprise an education in the principles and practice of coal mining, metal mining, quarrying, mine surveying, plan making, mining jurisprudence; and, in connexion with these courses, the students attend lectures and laboratory classes in those sciences allied to mining.

The complete course includes the following subjects:—

*FIRST YEAR.*

- 1.—Mathematics, Course I.
- 2.—Physics, Course I, and Physical Laboratory.
- 3.—Geology, Course I.
- 4.—Elementary Mining and Mining Engineering, Course I.

*SECOND YEAR.*

- 1.—Chemistry, Course I A, and Chemical Laboratory.
- 2.—Geology, Course II.

Applied Geology, Course III, A. and C.

- 3.—Engineering—Drawing.
- 4.—Mining, Course II.

*THIRD YEAR.*

- 1.—Mining, Course III.
- 3.—Engineering—Descriptive Engineering Course. Applied Mechanics and Graphics, Electrical Laboratory, and Steam Engineering practice in the power station.
- 4.—\* Metallurgy and Metallurgical Laboratory. Special Course for Metal Mining Students.

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Metallurgical Students will take Courses I and III, and can omit Course II.

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\* Only Students specialising in Metal Mining will be required to take the Metallurgical Course.

## LECTURE AND LABORATORY COURSES.

## I.

## FIRST YEAR'S COURSE.

Two lectures a week. Hours by arrangement.

FEE:—£3 3s.

(a) A course of about sixty lectures will be given during the session on General Mining, which will follow the lines of the subjoined syllabus.

## Syllabus.

*Objects and Conditions of Mining.*—Scope of the subject.

*Prospecting and Boring.*—Outcrops, surface indications, coal and other mineral deposits, costeaning, shoadng, position of boreholes, various methods of boring, surveying boreholes.

*Breaking Ground.*—Sinking shafts, position, number, shape, and size of shafts, manner of sinking and securing shafts, sinking through running ground, various costs in connection with sinking.

*Underground Development and Systems of Working.*—Laying out a colliery underground. Preliminary operations in coal and metal mines. Various systems of working coal seams and mineral veins. Coal cutting. Blasting. Timbering in colliery workings and in metal mines.

*Transport.*—Underground and Surface transport, haulage by hand, by horse, mechanical haulage, inclines, locomotive and electric haulage. Ropes, surface transport, aerial ropeways, horse, steam, and electric tramways.

*Winding.*—Kibbles, skips, cages, ropes, pithead frames, guides, keeps, onsetting and banking, arrangement of pit-head. Winding engines, drums.

*Drainage.*—Water levels, dams, underground pumping and pumps, pumping by ropes, steam, compressed air, electric and hydraulic pumps, surface pumps and pumping.

*Ventilating.*—Air and mine gases. Natural ventilation. Furnaces, fans, and other ventilators, underground air-currents. Splitting and measuring air-currents. Safety lamps.

*Miscellaneous.*—Lighting of mines. Modes of communication. Screening of coals and preparation for the market, coal-washing, coking. Arrangement of surface works.

(b) *Mine and Land Surveying and Plotting extending over two years.*—A portion of one day a week will be devoted to surveying in the field or underground, or to plotting surveys in the drawing room.

FEE:—£1 1s. per annum.

This course is intended for students in Mining, Agriculture, Civil and Electrical Engineering. Besides the practical work in the field, underground, and in the drawing room, there will be lectures on the subject.

#### SYLLABUS OF LECTURES.

Drawing and making Scales, Plotting Angles by Protractor, by Chords, and by Co-ordinates. Calculation of Areas. Measurement of Distances. Chains, tapes, offsets. Measurement on Slopes. Clinometers. Levelling. Level and Staff. Flying levels. Underground levelling and levels. Sections, cuttings and embankments. Miner's Dial. Loose and fast needle dialling. The Theodolite, Prismatic Compass. Mode of conducting a surface and an underground survey. Connecting surface and underground Surveys. Miscellaneous Surveying Problems.

(c) *Visits of Inspection to Mines.*—On Saturdays there will be, whenever possible, visits to the coal mines in the neighbourhood, when much that has been treated by the Lecturer during the week will be emphasized by the practical demonstration then witnessed. These visits will be common to the students attending all or any of the mining courses.

The first year course constitutes in itself a complete outline mining course, and can be taken as such by occasional students, but those students who have entered for the Mining Diploma or the degree of B.Sc. in Mining will have to proceed in the one case to Course II and in the other to Courses II and III.

## II.

### SECOND YEAR'S COURSE.

One Lecture a week.

FEE:—£1 11s. 6d. Laboratory (Coal Mining) £2 12s. 6d.

A course of about thirty lectures will be given during the Session, which will follow the subjoined Syllabus.

*Colliery and Mine Management.*—Pumping, re-opening of drowned out mines; special instances described. Colliery explosions. Mode of procedure in work of rescue and reclamation; special instances treated. Steam, compressed air, and electricity as sources of power in Mining. Systems of employment and payment of men. Relations of Capital and Labour. Examination and Valuation of Mines and Mineral Properties. Mine Reports. Commercial considerations.

*Mining Jurisprudence.*—Mining Laws and Regulations. Acts of Parliament relating to Coal and Metal Mines. Ownership of Minerals, Royalties, Concessions, Leases, Dues. Foreign Mining Laws.

*Quarrying and Brickmaking.*—The Quarrying of Slates and Building Stones, Clays, and Brick Making.

The Mine and Land Surveying and Plotting will be continued in the second year, the syllabus described under the first year's course being common to the first and second years; the more advanced sections being taken in the second year.

### III.

#### THIRD YEAR'S COURSE.

**FEEs:**—Lectures, £2 2s.; Laboratory, £5 5s.

A considerable part of the time of the third year's Mining Course will be given to practical work in the laboratory, but there will be a series of lectures on Foreign Coal and Metal Mining, also instruction in the theoretical principles involved in the dressing of gold, silver, copper, lead and other ores, and of fuels. These lectures and the instruction will be in accordance with the following Syllabus:—

#### FOREIGN COAL AND METAL MINING.

*Coal and Mineral Deposits.*—Methods of Classification. Various classes of Deposits, with illustrative typical examples of each. Chief coal and ore deposits of the world. Their mode of occurrence, distribution and importance.

*Working of Coal and Ore Deposits.*—Special methods adopted in different parts of the world to meet special requirements. Brown coal, bituminous coal, the anthracites of America and elsewhere. Foreign metal mines.

## DRESSING OF MINERALS AND FUELS.

*Objects and Principles.*

*Hand Sorting.*—Spalling, Picking, Picking Belts, Tables.

*Crushing.*—Rock-breakers, Rolls, Stamps, Disintegrators, Coal-breakers.

*Sizing.*—Sieving, Screens of various types, Hydraulic Sizing.

*Hydraulic Dressing.*—Principals, Jigs, Coal-washers, Buddles, Blankets, Frames, Vanners.

*Pneumatic Dressing.*

*Magnetic Separation.*

*Applications of methods to special cases.*—Coal Washing. Cleaning Iron Ores. Dressing of Lead, Copper, Zinc Ores. Tin Stamping. Gold Milling. Concentrating Silver Ores. Gem Washing. The Designing and Erection of Mineral Dressing Plant.

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## FIRST YEAR COURSE FOR DEGREES IN MINING.

| SUBJECTS.                  | FEES.      | CLASS HOURS. |             |            |             |            |                                                                            |
|----------------------------|------------|--------------|-------------|------------|-------------|------------|----------------------------------------------------------------------------|
|                            |            | Monday.      | Tuesday.    | Wednesday. | Thursday.   | Friday.    | Saturday.                                                                  |
| <i>Membership Fee</i> ..   | 1 1 0      |              |             |            |             |            |                                                                            |
| MATHEMATICS I.             | 4 4 0      | 12.30—1.30   | 11.30—12.30 | ...        | 11.30—12.30 | 12.30—1.30 | ...                                                                        |
| PHYSICS I.—                |            |              |             |            |             |            |                                                                            |
| Lecture ..                 | } 5 15 6 { | 11.30        | ...         | 11.30      | ...         | 11.30      | ...                                                                        |
| Laboratory ..              |            | 2.30—4.30    | ...         | ...        | ...         | ...        | ...                                                                        |
| GEOLOGY I. ...             | 5 5 0      | ...          | 9.30—11.30  | ...        | 9.30—11.30  | ...        | 9.30—11.30                                                                 |
| MINING—                    |            |              |             |            |             |            |                                                                            |
| Lecture I. ..              | } 4 4 0 {  | ...          | 3.0—4.0     | ...        | ...         | 3.0—4.0    | (Occasional Excursions to mines in the locality, or out-door Survey work.) |
| Surveying and Planning ... |            | ...          | ...         | 2.30—4.30  | ...         | ...        | ...                                                                        |
|                            | £20 9 6    |              |             |            |             |            |                                                                            |

# SECOND YEAR COURSE FOR DEGREES IN MINING.

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| SUBJECTS.                  | FEES.    | CLASS HOURS. |             |             |           |             |                                                                          |
|----------------------------|----------|--------------|-------------|-------------|-----------|-------------|--------------------------------------------------------------------------|
|                            |          | Monday.      | Tuesday.    | Wednesday.  | Thursday. | Friday.     | Saturday.                                                                |
| <i>Membership Fee</i> ...  | 1 1 0    |              |             |             |           |             |                                                                          |
| CHEMISTRY—                 |          |              |             |             |           |             |                                                                          |
| *Lecture I. A ...          | 4 4 0    | 9.30         | 9.30        | 9.30        | 9.30      | ...         | ..                                                                       |
| Laboratory ...             | 5 15 6   | 2.0—5.0      | ...         | ...         | ...       | 2.0—5.0     | ...                                                                      |
| <i>Caution Money</i> ...   | 1 0 0    |              |             |             |           |             |                                                                          |
| GEOLOGY—                   |          |              |             |             |           |             |                                                                          |
| Lecture II. ...            | 4 4 0    | 10.30—11.30  | ...         | 10.30 11.30 | ...       | 10.30—11.30 | ...                                                                      |
| Laboratory ...             |          | 11.30—12.30  | ...         | 11.30—12.30 | ...       | 11.30—12.30 |                                                                          |
| ENGINEERING—               |          |              |             |             |           |             |                                                                          |
| Drawing ...                | 2 2 0    | ...          | ...         | 2.0—5.0     | ...       | ...         | ...                                                                      |
| MINING—                    |          |              |             |             |           |             |                                                                          |
| Lecture II. ...            | 1 11 6   | ...          | 10.30—11.30 | ...         | ...       | ...         | (thousand visits to mines in the neighborhood, or out-door survey work.) |
| Surveying and Planning ... | 1 1 0    | ...          | ...         | ...         | 2.30—4.30 | ...         | ...                                                                      |
| Laboratory ...             | 2 12 6   | ..           | 2.0—5.0     | ...         | ...       | ...         | ...                                                                      |
|                            | £23 11 6 |              |             |             |           |             |                                                                          |

\* Winter and Spring Terms.

## THIRD YEAR COURSE FOR DEGREES IN MINING.

| SUBJECT.                                                                                                                             | FEES.                     | CLASS HOURS.          |                              |                       |                              |                       |                                                                               |
|--------------------------------------------------------------------------------------------------------------------------------------|---------------------------|-----------------------|------------------------------|-----------------------|------------------------------|-----------------------|-------------------------------------------------------------------------------|
|                                                                                                                                      |                           | Monday.               | Tuesday.                     | Wednesday.            | Thursday.                    | Friday.               | Saturday.                                                                     |
| MINING—<br>Membership Fee ...<br>Lecture III. ...<br>Laboratory ...                                                                  | 1 1 0<br>2 2 0<br>5 5 0   | <br>10.30<br>2.0—5.0  | <br>...<br>...               | <br>...<br>...        | <br>...<br>...               | <br>10.0—5.0<br>...   | <i>Occasional<br/>Visits to the<br/>Mines in the<br/>neighbour-<br/>hood.</i> |
| ENGINEERING—<br>Course I. ...<br>Course II. ...<br>Electrical Laboratory and<br>Steam Engineering prac-<br>tice in power station ... | 2 12 6<br>3 13 6<br>9 9 0 | <br>...<br>...<br>... | 11.0—12.0<br>12.0<br>2 0—5.0 | <br>...<br>...<br>... | 11.0—12.0<br>12.0<br>2.0—5.0 | <br>...<br>...<br>... |                                                                               |
| METALLURGY—<br>Lecture II. ...<br>Laboratory ...<br>(Nine hours a week by<br>arrangement)<br>Caution Money ...                       | 3 3 0<br>6 16 6<br>1 0 0  | 11.30<br>...<br>...   | <br>...<br>...               | 11.30<br>...<br>...   | <br>...<br>...               | <br>...<br>...        |                                                                               |
|                                                                                                                                      | £35 2 6                   |                       |                              |                       |                              |                       |                                                                               |



## BIOLOGY AND CHEMISTRY OF FERMENTATION.

*Professor:* ADRIAN J. BROWN, M.Sc. ; F.I.C.

*Lecturer:* THOMAS H. POPE, B.Sc. ; A.I.C.

### INTRODUCTION.

This Department is intended to provide instruction and encourage research in the Biology and Chemistry of Fermentation, and is associated with the School of Brewing which has been founded to provide scientific and technical instruction in the principles of brewing and the fermentation industries generally.

The courses of instruction provided are :—

1. A Degree Course in the Biology and Chemistry of Fermentation.
2. A Diploma Course in the Technology of Brewing.
3. Shorter Courses of study in the Technology of the fermentation industries.

### DEGREE COURSE.

The Degree Course is recommended to those students who contemplate taking up Biological work in connection with such subjects as the Fermentation Industries, Agriculture, Bacteriology in connection with water supply, and the treatment of sewage, &c. It is also suitable for students who are candidates for the associate-ship of the Institute of Chemistry in the branch of Biological Chemistry.

Candidates for the degree of B.Sc. are required to be matriculated in the Faculty of Science, and during their first year to attend the courses laid down for all degree students in Pure Science, viz. :— Pure Mathematics, Physics, Chemistry and Elementary Biology, and pass the Intermediate Science Examination. In their second and third years they must take the Biology and Chemistry of Fermentation as a principal subject and Chemistry as a double subsidiary subject.

The courses are set out in detail in the following table :

SECOND YEAR COURSES.

- (i) Vegetable Physiology and Morphology, with special reference to the Fungi (Botany, Course II) with Laboratory.
- (ii) Advanced Organic Chemistry, together with General and Physical Chemistry (Course II), with Laboratory.

THIRD YEAR COURSES.

- (i) Biology and Chemistry of Fermentation.
  - (a) Lectures and practical work, comprising a study of the Micro-Organisms of Fermentation—their culture, classification, morphology, physiology, and chemical actions.
  - (b) Lectures and practical work, comprising a study of the Carbo-Hydrates and the special methods employed in their examination ; and of the Protoïds and their products of decomposition.
  - (c) Lectures and practical work, comprising a study of Enzymes and their actions.
- (ii) Advanced Organic Chemistry, together with General and Physical Chemistry (Course III), with Laboratory.

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DIPLOMA COURSES.

The Diploma Courses extend over a period of three years. In the first year Elementary Inorganic Chemistry, Physics, Botany, Mathematics, and Engineering Drawing are taken, with a modern language as an optional subject ; but this course of study is subject to alteration according to the students' previous education.

The second year's course includes advanced Chemistry, both inorganic and organic, with an extended course of

laboratory work, practical elementary Bacteriology, Engineering and Electrical Engineering, and a short course of lectures on Geology.

The third year's course consists of lectures on the Technology of Brewing and practical work in the Brewing Laboratory.

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### *SPECIAL DIPLOMA FOR GRADUATES.*

Graduates who have taken the degree of B.Sc. with the Biology and Chemistry of Fermentation as a principal subject may obtain a Special Diploma in the Technology of Brewing after a further course of study of one year in the Department.

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### *SHORT COURSES.*

Shorter courses of instruction in the technology of brewing and the fermentation industries generally, comprising both lectures and laboratory work, are also arranged.

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*For full information regarding the Diploma Course in Brewing and the shorter courses of study the student is referred to the special syllabus of the School of Brewing.*

The Laboratory of the Department is open from 9.30 a.m. to 5.30 p.m. for special study and research work, under the direction of Professor Adrian Brown, to whom applications should be made.

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## FACULTY OF ARTS.

### REGULATIONS FOR DEGREES IN THE FACULTY OF ARTS.

No degree can be obtained without attendance upon certain prescribed courses of study in the University extending over a period of at least three years after matriculation, and no attendance upon lectures in the University prior to matriculation will be accepted as any part of the qualification necessary for a degree without special leave from the Senate. The work of candidates is estimated partly by class exercises and examinations during the courses of study, and partly by examinations at the end of the session, and the same total of marks is assigned to each of these portions of the student's work, but a certain minimum percentage must be obtained of each of these totals. At the end of each session, before being admitted to the sessional examination, each undergraduate is required to present a certificate of qualification stating that he has attended to the satisfaction of the professors concerned not less than two-thirds of the lectures and classes, and that he has passed such class examinations and performed such other exercises his teachers may prescribe in connexion with their own courses, to the satisfaction of the Faculty.

#### ORDINARY COURSES FOR THE B.A. DEGREE.

Candidates for the Degree of Bachelor of Arts are required to have spent at least three sessions in attendance on lectures in the University after having been matriculated in the Faculty, and to pass three University Examinations, the Intermediate, and the First and Second Degree Examinations, in addition to the Class Examinations held by the Professors in connexion with their courses.

## FIRST YEAR'S COURSES.

After being matriculated in the Faculty, candidates are required to attend courses of study for at least one session in each of the following subjects :—

- (i.) Latin.
- (ii.) English Language, Literature and History.
- (iii.) Either Pure Mathematics or Logic.
- (iv.) Two of the following, of which one must be a modern foreign language or Hellenistic Greek :—Greek (Classical or Hellenistic), French, German, Italian, Spanish), Logic or Pure Mathematics (if not already selected under iii.), a Physical or a Natural Science, Theory and Practice of Education, European History since the French Revolution, Geography.

Candidates, after presenting to the Registrar the necessary schedules of qualification in three or more of these subjects, will be admitted to the Intermediate Examination in those subjects.

Two printed examination papers will be set in each of the five subjects of Examination. There will also be a *viva voce* examination in Latin, Greek, and Modern Foreign Languages. The Examiners, however, will not be precluded from holding a *viva voce* examination in any subject if they think it desirable.

The Intermediate pass list will be issued in three divisions, the first of which will contain the names of those candidates who pass with distinction.

There will be a supplementary examination in September, and candidates who have taken and passed in three or more of their subjects may complete the examination in September. Candidates who have failed in any of the subjects in June may be allowed by the Board of Examiners to sit for the examination again in September, or may be required to attend a further course in that subject before being admitted to a subsequent examination.

## SECOND AND THIRD YEARS' COURSES.

Candidates are required to take either a two-year course of study in each of four principal subjects, or a two-year course of study in each of three principal subjects, and a one-year course in each of two subsidiary subjects. When four principal subjects are taken one subject must be selected from each of the following groups i.—iv. ; and when five subjects are taken one must be selected from each of the following groups i.—v. :—

- (i.) One Ancient Language and Literature (Latin, Greek or Hebrew.)
- (ii.) One Modern Foreign Language and Literature (French, German, Italian, Spanish, or, provided that Greek is not taken under heading (i), Hellenistic Greek).
- (iii.) Either English Literature or History (Ancient or Modern).
- (iv.) Either Mathematics or Philosophy.
- (v.) A "special subject" to be selected among the subjects taught in the University at compatible hours. This subject must be either
  - (a) A fifth subject (other than the four already selected) from one of the preceding four groups, or
  - (b) A fifth subject not contained in any of the above groups, studied for one year as a subsidiary subject ; *e.g.*, Logic (if not already taken at the Intermediate Examination), Commerce of the British Empire, History of Educational Ideas, a Physical or Natural Science.

There will be a written examination at the end of each Session, at which two printed examination papers will be set in each subject studied during that Session, and candidates will be admitted to these examinations after presenting to the Registrar the necessary schedules of qualification.

There will also be a *viva voce* examination in Latin, Greek, and Modern Foreign Languages. The Examiners, however, will not be precluded from holding a *viva voce* Examination in any subject, if they think it desirable.

Candidates who pass the examination in one or more of their principal subjects shall not be required to be re-examined in those subjects, provided they have attained a standard equal to the second division at least.

The B.A. pass list will be issued in three divisions, the first of which will contain the names of those candidates who pass with distinction in one or more of their principal subjects.

Candidates who have failed in any of the subjects offered for examination may be required by the Faculty to attend a further course of study in that subject before being admitted to a subsequent examination.

#### M.A. DEGREE.

Bachelors of Arts may be admitted to the degree of M.A. on passing an Examination after at least one year of further study\* in one or in two of the principal subjects taken at the B.A. Degree, and presenting a dissertation indicative of acquaintance with the methods of research and connected with the subject or with one of the subjects offered for examination. The year of special study at the University is not required from Bachelors of Arts who have graduated in the School of Modern Languages or in the other specialised courses. The dissertation may be presented at any time after the lapse of one year after graduation.

#### D.PHIL. AND D.LITT. DEGREES.

Masters of Arts may be admitted to the degree of D.Phil. (Doctor Philosophiæ) or D.Litt. (Doctor Litterarum) on the presentation and approval of a printed or type-written dissertation embodying the results of original research or contributing generally to the advancement of learning.

\* In ordinary cases the year of study must be spent at the University of Birmingham; but candidates desirous of pursuing some special line of study at some other (British or Foreign) University may receive permission to do so on the recommendation of the Faculty.

## ALTERNATIVE COURSES FOR DEGREES IN ARTS.

These courses are designed to allow students, especially those who are preparing for the career of a teacher in the higher forms of secondary schools, to devote themselves to a smaller number of subjects studied at a much higher standard than those prescribed in the preceding regulations.

## (a) SCHOOL OF MODERN LANGUAGES.

Candidates may be admitted to the School of Modern Languages after passing the Intermediate Examination in Arts in the First Division, the following subjects being taken :—(i.) French, (ii.) German, (iii.) Latin, (iv.) English Language, Literature and History, (v.) either Mathematics or Logic.

This Examination may be taken either at entrance to the University in lieu of the Matriculation Examination, or at the end of one year's course of study at the University after passing the Matriculation Examination.

After completing a three years' course of study and passing two examinations students of the School will be admitted to the degree of Bachelor of Arts in the School of Modern Languages; and after completing one year of further study and presenting a dissertation indicative of acquaintance with the methods of research and connected with one of their subjects of study they may be admitted to the degree of Master of Arts in the School of Modern Languages.\*

The course for the degree of Bachelor of Arts in the School of Modern Languages embraces the following subjects of study :—

- (i.) French *or* German, taken as a principal subject.
- (ii.) German *or* French *or* English, taken as a subsidiary subject.

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\* One of these four years of study may be spent at some other (British or Foreign) University on the recommendation of the Faculty.



- (iii.) An additional subject during the first two years of the course, viz., either English or Latin.

The First Examination in the School of Modern Languages will be held at the end of the first year of study.

The Final Examination in the School of Modern Languages will be held at the end of the third year of study, and will include papers of the standard of the ordinary M.A. Examination in the following groups, of which Groups I and II must be taken in the principal subject, and Group I in the subsidiary subject:—

### French.

#### GROUP I.

- (i.) French Essay.
- (ii.) Unprepared French Translation.
- (iii.) Selected French Authors.
- (iv.) History of French Literature.

#### GROUP II.

- (i.) French History and Institutions.
- (ii.) Old and Middle French Texts.
- (iii.) Romance Philology.
- (iv.) A selected period of French Literature.

### German.

#### GROUP I.

- (i.) German Essay.
- (ii.) Unprepared German Translation.
- (iii.) Selected German Authors.
- (iv.) History of German Literature.

#### GROUP II.

- (i.) German History and Institutions.
- (ii.) Old and Middle High German Texts.
- (iii.) Germanic Philology.
- (iv.) A selected period of German Literature.

### English (if taken as a subsidiary subject).

- (i.) English Essay.
- (ii.) Shakspere.
- (iii.) Selected English Authors.
- (iv.) History of English Literature.

For Scholarships tenable in the School of Modern Languages, see Harding Scholarships in German, p. 147.

*(b) OTHER SPECIALISED COURSES.*

Candidates shall be admitted to an advanced course in Arts after passing the Intermediate Examination in Arts in the First Division; which examination may be taken either on entrance to the University in lieu of the Matriculation Examination, or at the end of one year's course of study at the University subsequent to passing the Matriculation Examination. The Intermediate Examination is held twice a year in June and September, and students desiring to take it in lieu of the Matriculation Examination may be examined at either of these dates. After completing a three years' course of study and passing two examinations students shall be admitted to the degree of Bachelor of Arts; and after the expiration of one further year and the presentation and approval of a dissertation indicative of acquaintance with the methods of research and connected with one of their principal subjects of study they may be admitted to the degree of Master of Arts. The course of study shall embrace (1) two principal subjects studied during three years each; (2) one subsidiary subject studied during two of the three years.

The first examination shall be held at the end of the first year of study; the final examination shall be held at the end of the third year of study, and shall include at least four papers of the standard of the existing M.A. Examination in each of the principal subjects. The examination in the subsidiary subject shall be of the standard of a principal subject at the B.A. Examination, and shall be taken at the end of either the second or third year of study.

As principal subjects may be taken—Latin Language and Literature, Greek Language and Literature, French Language and Literature, German Language and Literature, English Language and Literature, Modern History, Mathematics, Mental and Moral Philosophy.

As the subsidiary subject may be taken any of the above, or (1) Theory and Practice of Education, or (2) a Physical or Natural Science, or (3) a subject or group of subjects taught in the Faculty of Commerce as approved by the Faculty of Arts.

## ADMISSION OF GRADUATES FROM OTHER UNIVERSITIES.

Graduates or persons who have passed degree examinations of other Universities, who present evidence satisfactory to the Faculty of Arts that they are qualified to pursue a course of advanced study or research are allowed to enter the University and to become candidates for the degree of Master of Arts (without taking the Bachelor's degree) after two years of regular study or research, provided that they satisfy the Faculty at the end of their first year that their work is satisfactory. Persons who take the Master's degree under this regulation will be allowed to become candidates for the Doctor's degree at any time after one year from the attainment of the Master's degree, without further attendance at the University.

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## FEES FOR EXAMINATIONS AND DEGREES.

|                                    | £  | s. | d. |
|------------------------------------|----|----|----|
| (i.) Intermediate Examination ...  | 2  | 0  | 0  |
| (ii.) Second Arts Examination ...  | 2  | 0  | 0  |
| (iii.) Final B.A. Examination ...  | 2  | 0  | 0  |
| (iv.) Admission to B.A. Degree ... | 2  | 0  | 0  |
| (v.) M.A. ...                      | 5  | 0  | 0  |
| (vi.) D.Phil. or D. Litt. ...      | 10 | 0  | 0  |

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## TIME TABLE OF PRELIMINARY CLASSES.

| SUBJECT.                                         | Mon.  | Tues. | Wed. | Thurs. | Fri.  |
|--------------------------------------------------|-------|-------|------|--------|-------|
| Mathematics .....                                | 10.30 | 10.30 | ...  | 10.30  | 10.30 |
| Chemistry (Winter & Spring)                      | ...   | 11.30 | ...  | 11.30  | ...   |
| Physiography<br>(Matriculation) }                | ...   | 3.30  | ...  | 3.30   | ...   |
| Physiography (Advanced) ..                       | 3.30  | 9.30  | ...  | ...    | ...   |
| Botany (Winter & Spring)...                      | ...   | ...   | ...  | 11.30  | ...   |
| Botany (Summer) .....                            | ...   | 11.30 | ...  | 11.30  | ...   |
| * Animal Biology .....                           | ..    | ...   | ...  | ...    | ...   |
| Geography (First Year).....                      | ...   | 3.30  | ...  | 3.30   | ...   |
| Geography (Second Year)...                       | 3.30  | 9.30  | ..   | ...    | ...   |
| Geology (Winter & Spring)                        | ...   | ...   | ...  | 2.30   | ...   |
| Geology (Advanced)     )<br>(Winter and Spring)  | ...   | ...   | ...  | 3.30   | ...   |
| Local Geology (Summer) ...                       | ...   | ...   | ...  | 2.30   | ...   |
| Latin A and B.....                               | ...   | 4.30  | ...  | 4.30   | 4.30  |
| Greek .....                                      | 2.30  | ...   | ...  | 2.30   | 2.30  |
| English Literature .....                         | 9.30  | ...   | 9.30 | ...    | ...   |
| English History .....                            | ...   | 9.30  | ...  | 9.30   | ...   |
| English Composition     )<br>(Winter and Spring) | ...   | 2.30  | ...  | ...    | ...   |
| French .....                                     | 3.30  | 4.30  | ...  | 2.30   | 3.30  |
| German .....                                     | 2.30  | ...   | ...  | 2.30   | 2.30  |

\* Saturdays at 11.30 a.m.

## TIME TABLE

## FIRST YEAR COURSES.

| SUBJECT.               | Course | Mon.                   | Tues.  | Wed.  | Thurs. | Fri.  |
|------------------------|--------|------------------------|--------|-------|--------|-------|
| Latin... ..            | I.     | 2.30                   | ...    | ...   | 2.30   | ...   |
| " (Composition)        | ...    | ...                    | ...    | 3.30  | ...    | 2.30  |
| Greek ... ..           | I.     | <i>By arrangement.</i> |        |       |        |       |
| English Literature ... | I.     | 10.30                  | ...    | ...   | 10.30  | ..    |
| French ... ..          | I. A   | 4.30                   | 4.30   | ...   | ...    | 11.30 |
| " .. ..                | I. B   | 4.30                   | ...    | ...   | 4.30   | 11.30 |
| German ... ..          | I.     | 3.30                   | ...    | ...   | 3.30   | 3.30  |
| Pure Mathematics ...   | I.     | 12.30                  | 11.30  | ...   | 11.30  | 12.30 |
| Logic... ..            | I.     | 9.30                   | 9.30   | ...   | 9.30   | ...   |
| History ... ..         | I. B   | 11.30                  | ...    | 11.30 | ...    | ...   |
| " ... ..               | II.    | ...                    | ...    | 9.30  | ...    | 9.30  |
| " ... ..               | III.   | ...                    | 10.30† | ...   | ...    | ...   |
| Education .. ..        | I.     | ...                    | 10.30  | 9.30† | ..     | 10.30 |
| " .. ..                | II.    | <i>By arrangement.</i> |        |       |        |       |

† Spring and Summer.

## TIME TABLE

## SECOND AND THIRD YEARS' COURSES.


For Students preparing for B.A. and M.A. Examinations.

| SUBJECT.            | Course                         | Mon.                    | Tues.        | Wed.             | Thur.          | Fri.                   |
|---------------------|--------------------------------|-------------------------|--------------|------------------|----------------|------------------------|
| Latin ... ..        | II.                            | ...                     | 2.30         | ...              | 2.30           | ...                    |
| " ... ..            | III.                           | ...                     | 3.30         | ...              | 3.30           | ..                     |
| " ... ..            | IV.                            | 4.30                    | ..           | 2.30             | ...            | 3.30                   |
| " (Composition) ... | ...                            | 3.30                    | ...          | ...              | ...            | ( 2.30<br>3.30         |
| Greek ... ..        | II.                            | ...                     | 4.30         | ...              | 4.30           | ...                    |
| " ... ..            | III.                           | 3.30                    | 2.30         | ...              | ...            | ...                    |
| " ... ..            | IV.                            | <i>By arrangement.</i>  |              |                  |                |                        |
| " .. ...            | V.                             | ...                     | 3.30         | ...              | 2.30           | ...                    |
| " (Composition) ... | ...                            | ...                     | ...          | ...              | ...            | ( 2.30<br>3.30         |
| English ... ..      | II.                            | ...                     | 11.30        | ...              | 9.30           | 11.30                  |
| " ... ..            | III.                           | 11.30                   | ...          | 11.30            | 11.30          | ...                    |
| " ... ..            | IV.                            | ...                     | 12.30        | ...              | 12.30          | 12.30                  |
| French ... ..       | II.                            | 10.30                   | ...          | 10.30            | 5.45           | 10.30                  |
| " ... ..            | III.                           | 2.30                    | ...          | 10.30            | 5.45           | 11.30                  |
| " ... ..            | IV.                            | { 11.30<br>2.30<br>3.30 | ...          | { 10.30<br>11.30 | { 3.30<br>5.45 | { 11.30<br>12.30       |
| German ... ..       | II.                            | 3.30                    | ...          | ...              | 3.30           | 4.30                   |
| " ... ..            | III. <sup>A</sup> <sub>B</sub> | { 4.30<br>...           | 4.30<br>4.30 | ...              | 4.30<br>...    | ...                    |
| " ... ..            | IV.                            | ...                     | 3.30         | ...              | { 2.30<br>5.30 | { 3.30<br>4.30<br>5.30 |
| Pure Mathematics... | II.                            | 10.30                   | ...          | 10.30            | ...            | 10.30                  |
| " " ..              | III.                           | 9.30                    | ...          | 9.30             | ...            | 9.30                   |
| Applied " ...       | I.                             | 9.30                    | ...          | 9.30             | ...            | 9.30                   |
| " " ...             | II.                            | 11.30                   | ...          | 11.30            | ...            | 11.30                  |
| Philosophy ...      | II.                            | 12.30                   | ...          | 12.30            | ...            | 12.30                  |
| " ... ..            | III.                           | 12.30                   | ...          | 12.30            | ...            | ...                    |
| History ... ..      | I. A                           | 12.30                   | ...          | 12.30            | ...            | ...                    |
| " ... ..            | III.                           | ...                     | 10.30        | ...              | ...            | ...                    |
| " ... ..            | IV. A                          | <i>By arrangement.</i>  |              |                  |                |                        |
| " ... ..            | V.                             | ...                     | ..           | 2.30             | ...            | ...                    |
| Education ...       | III.                           | <i>By arrangement.</i>  |              |                  |                |                        |

## LATIN.

*Professor* : E. A. SONNENSCHN, M.A. ; D.Litt. (Oxon).

*Lecturer in Classics* : C. D. CHAMBERS, M.A. (Oxon.)

 The *Preliminary Course* in Latin is designed to secure a knowledge of the language (including Grammar and Composition), such as is necessary for students entering on University Courses in this subject.

The *University Courses* in Latin for the ordinary B.A. degree are designed to embrace a study of representative masterpieces of Latin literature, which will be treated as literary wholes and from a literary point of view. These Courses bring the student into contact with typical specimens of Latin literature in the fields of Epic and Lyric poetry, and of historical and philosophical prose and literary criticism, and thus provide a basis for the historical and comparative study of literature. At the same time the grammatical and philological study of the language and the practice of composition will be maintained and developed, mainly in connexion with the prose works selected under each course.

One University Course (Course IV) will be reserved as an advanced and specifically linguistic course; and students entering the University with a view to reading for the M.A. Examination are recommended to take this Course (the subject of which will be varied from year to year) in addition to other Courses throughout their period of study, in regard to which they should consult the Professor as early as possible.

VACATION READING.—For the subjects recommended for Vacation Reading in Latin and Greek see page 356.

## PRELIMINARY COURSE.

Tuesdays, Thursdays, and Fridays, at 4.30.

In this Course students are prepared for the Matriculation Examination of the University of Birmingham. During the month of October all the students taking this course will work together (the Lectures being delivered in the Arts Theatre); after the end of October the class will be divided into two Sections (A and B), according to proficiency.

SUBJECTS: *Pro Patria*, a Latin story by Professor Sonnenschein, together with Cicero, *Pro Lege Manilia*. The edition recommended is that by J. Hunter Smith, published by Swan Sonnenschein & Co., who also publish *Pro Patria*.

FEE:—£3 13s. 6d.

## UNIVERSITY COURSES.

## COURSE I.—THE EPIC.

Mondays and Thursdays, at 2.30.

SUBJECTS: (1) Vergil, *Aeneid* IV. and VI., with a literary study of the *Aeneid* as a whole.  
(2) Selections from Livy.

BOOKS RECOMMENDED:

Vergil: *Aen.* I.—VI., edited by Page (Macmillan's Classical Series).

Translation of the whole *Aeneid*, in verse, by J. Rhoades (Longman); or of *Aeneid* I.—VI. in verse, by Bowen (Murray).

*Latin Literature*, by J. W. Mackail (Murray).

FEE:—£2 12s. 6d.

## COURSE II.—LYRIC POETRY.

Tuesdays, at 2.30, and Wednesdays, at 4.30.

After October the days of meeting in this course will be Tuesdays and Thursdays, at 2.30.


SUBJECTS—(1) Select lyrics of Horace and Catullus.

(2) Tacitus, *Agricola*.



## BOOKS RECOMMENDED :

Horace : *Odes*, edited by Page (Macmillan's Classical Series) or by Gow (Pitt Press).

 Students taking Latin as a principal subject for the B.A. are recommended to get the whole works of Horace, edited in one volume, by Page, Palmer and Wilkins (Macmillan).

Translations : verse, by De Vere (Bell), or select Odes in W. Scott's *Canterbury Poets*.

Catullus : *Select Poems*, edited by Simpson (Macmillan's Classical Series).

Translation : verse, by Martin (Blackwood).

Tacitus : *Agricola*, edited by Walters (Blackie), or by Furneaux (Clarendon Press).

Translation by Church and Brodribb (Macmillan).

FEE :—£2 12s. 6d.

## COURSE III. — LITERARY AND PHILOSOPHICAL CRITICISM.

Tuesdays and Thursdays, at 3.30, during the Winter and Spring Terms. During the Summer Term meetings will be arranged for conference and discussion.

SUBJECTS : (1) Horace, *Select Epistles*, including the *Ars Poetica*.

(2) Cicero, *De Finibus*, Book V.

## BOOKS RECOMMENDED :

Horace, complete works by Page, Palmer and Wilkins (see Course II.), or *Epistles* alone by Wilkins (Macmillan's Classical Series).

Translation of the *Epistles* in verse by Conington (Bell).

Cicero, *De Finibus*, text of the five books edited without notes by C. F. W. Müller (Teubner).

The Student's Cicero, by W. Y. Fausset (Swan Sonnenschein & Co.).

FEE :—£2 12s. 6d.

*COURSE IV.—ADVANCED COURSE ON LANGUAGE.*

Mondays at 4.30, and Wednesdays at 2.30, or by arrangement.

The subjects of the Course will be chosen with a view to the M.A. Examination, and will include select plays of Plautus, with a study of Old Latin metres and grammar.

## EDITION RECOMMENDED :

T. Macci Plauti Comœdiæ, edited by Lindsay  
(in the *Scriptorum Classicorum Bibliotheca  
Oxonienſis*, vol. I.)

FEE :—£2 12s. 6d.

**Composition Sets.**

Sets will be formed for the practice of Latin Composition of various stages of difficulty, and will meet at the following hours :—Set 1 (*a*), Fridays, at 2.30 ; (*b*) Wednesdays, at 3.30 ; Set 2, Mondays, at 3.30 (after October, Fridays, at 2.30) ; Set 3, Fridays, at 3.30. More advanced students will be taken separately, at hours to be fixed at the commencement of the session.

## BOOKS RECOMMENDED :

For Set 1, *Third Latin Reader and Writer*, by  
C. M. Dix (Swan Sonnenschein & Co.)

FEE :—£1 11s. 6d.

*REQUIREMENTS FOR DEGREES.*

*Intermediate Arts Examination* : Course I.\*

*Ordinary B.A. Examination* :

- (i.) When Latin is a principal subject : Courses II.\* and III. in successive years.
- (ii.) When Latin is a subsidiary subject : *either* Course II.\* *or* Course III.

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\* Courses I. and II. may be taken in the reverse order (Course II. followed by Course I.)

*M.A. Examination:* Course IV. ; together with Course III., if not already taken for the B.A.

Candidates who offer Latin alone for the M.A. will be required to show a general knowledge of the Language and Literature, and a special knowledge of *four* Latin authors, to be selected by themselves and approved by the University. Candidates who offer Latin together with another subject will be required to show a special knowledge of only *two* Latin authors.

The subject of the dissertation required for the M.A. degree should be selected in consultation with the Professor as early in the session as possible.

## TIME TABLE.

| LATIN.              | Mon. | Tues. | Wed. | Thurs. | Fri. |
|---------------------|------|-------|------|--------|------|
| Preliminary Course— |      |       |      |        |      |
| Section A           | ...  | ...   | 4.30 | ...    | 4.30 |
| Section B           | ...  | ...   | 4.30 | ...    | 4.30 |
| University Courses— |      |       |      |        |      |
| Course I.           | ...  | 2.30  | ...  | 3.30*  | 2.30 |
| Course II.          | ...  | ...   | 2.30 | ...    | 2.30 |
| Course III.         | ...  | ...   | 3.30 | ...    | 3.30 |
| Course IV.          | ...  | 4.30† | ...  | 2.30†  | ...  |

\* Composition.

† Or by arrangement.

## GREEK.

*Professor* : E. A. SONNENSCHIEIN, M.A. ; D.Litt. (Oxon.).

*Lecturer* : J. H. HOPKINSON, M.A. (Oxon.), late Craven  
Fellow of the University of Oxford.

*Special Lecturer on Greek and Classical Archaeology* :  
J. H. HOPKINSON, M.A.

The *Preliminary Course* in Greek is designed to secure a knowledge of the language (including Grammar and Composition) such as is necessary for students entering on University Courses in this subject.

The *University Courses* in Greek for the ordinary B.A. Degree are designed to embrace a study of representative masterpieces of Greek literature, which will be treated from a literary point of view and with reference throughout to their background of Greek life and art. In the Advanced Course (Course IV.) there is a fuller treatment of the historical and archaeological questions arising in connexion with the subject matter of the books read.

During the Autumn and Spring Terms a course of lectures upon some branch of *Archæology* is usually delivered. These lectures are illustrated by lantern slides, and are open to the general public upon payment of the fee. For the course to be delivered this Session see p. 287.

The course of lectures on *New Testament Greek*.

Course V. is designed partly for theological students preparing for the Intermediate Arts Examination, partly for students who have no examination in view.

Any students desiring to study Greek outside the regular University Courses should apply to the Lecturer on or before the first day of the session.

## PRELIMINARY COURSE.

Mondays, Thursdays, and Fridays, at 2.30.

In this Course students are prepared for the Matriculation Examination of the University of Birmingham.

SUBJECTS : Xenophon, Selections ; Professor Sonnenschein's Greek Grammar ; Sidgwick's First Greek Writer (Rivingtons).

FEE :—£3 13s. 6d.

## UNIVERSITY COURSES.

## COURSE I.—THE EPIC.

By arrangement.

SUBJECTS—(1) Homer, *Odyssey* IX. and XI., with a literary study of the *Odyssey* as a whole.  
(2) Plato, *Apology*.

## BOOKS RECOMMENDED :

Homer, *Odyssey*, I.—XII., ed. by Merry (Clarendon Press).

Translation of the whole *Odyssey*: prose, by Butcher and Lang (Macmillan); verse, by Way (Barnicott and Pearce, Taunton).

Jebb, *Introduction to Homer* (MacLehose).

Plato, *Apology*, edited by Adam (Pitt Press Series), or Forman's *Selections from Plato* (Macmillan), which includes the *Apology*.

FEE :—£2 12s. 6d.

## COURSE II.—THE DRAMA AND HISTORY.

Tuesdays and Thursdays, at 4.30.

SUBJECTS : (1) Æschylus, *Prometheus*, with a literary study of the Greek Drama.  
(2) Plutarch, *Life of Pericles*.

## BOOKS RECOMMENDED :

Æschylus, *Prometheus*, edited by Haines (Swan Sonnenschein and Co.).

Æschylus, *The Seven Plays*, translated in verse by Campbell (Paul); or *The House of Atreus*, by Morshead (Paul), containing the *Oresteia*.

Jebb, *Primer of Greek Literature* (Macmillan).

Verrall, *The Student's Manual of Greek Tragedy* (Swan Sonnenschein & Co.).

Plutarch, *Life of Pericles*, by H. A. Holden (Macmillan).

FEE :—£2 12s. 6d.

*COURSE III.—ORATORICAL OR PHILOSOPHICAL PROSE  
AND LITERARY CRITICISM.*

Mondays, at 3.30, and Tuesdays, at 2.30, during the Winter and Spring Terms. During the Summer Term meetings will be arranged for conference and discussion.

SUBJECTS : (1) Plato, *Gorgias* ; or Demosthenes, *First Philippic* and *Olynthiac Orations*.  
(2) Aristophanes, *Frogs*.

NOTE.—Aristotle's *Poetics* is read in the English Literature Course for the Second Year (Course II.).

BOOKS RECOMMENDED :

Plato, *Gorgias*, edited by Lodge (Ginn & Co.)

Demosthenes, *First Philippic* and *Olynthiacs*, edited by Sandys (Macmillan).

Aristophanes, *Frogs*, edited by Merry (Clarendon Press).

Translation : verse by J. H. Frere (Morley's Universal Library).

FEE :—£2 12s. 6d.

*COURSE IV.—ADVANCED COURSE.*

By arrangement.

The subjects of study in this course will be chosen with a view to the M.A. Examination.

SUGGESTED SUBJECTS : (1) Pindar, *Pythian Odes*, with Pausanias, Book X. (2) Aristophanes, Select Plays. (3) Demosthenes, Private Orations.

BOOKS RECOMMENDED :

Pindar, *Olympian and Pythian Odes*, edited by Gildersleeve (Macmillan).

Translations : verse, by Morice (Paul) ; prose, by Myers (Macmillan).

Aristophanes, text of complete works by Hull and Geldart (Clarendon Press).

Translation of select comedies in verse by J. H. Frere (Morley's Universal Library), or by B. B. Rogers (Bell).

Demosthenes, Select Private Orations, by Paley and Sandys (Pitt Press).

FEE :—£2 12s. 6d.

*COURSE V.—HELLENISTIC GREEK (NEW TESTAMENT).*

Tuesdays and Thursdays, at 3.30.

In this course Hellenistic Greek will be studied in connexion with one or more selected books of the New Testament and other literature of the 1st and 2nd Centuries A.D.

Proposed courses :—

- (1) Acts, chaps. I.—XII., and the Catholic Epistles.
- (2) Acts, chaps. XIII.—XXVIII., and the Pastoral Epistles.

Students taking Hellenistic Greek for the Intermediate Arts Examination will be required to attend in addition one of the Composition Sets which meet on Fridays at 3.30.

FEE :—£2 12s. 6d.

*COURSE VI.—ART AND ARCHÆOLOGY (see page 284).*

*Subject:* The Development of Greek Sculpture. (A special syllabus of this course will be issued at the beginning of the Autumn term.)

**Composition Sets.**

Sets will be formed for the practice of Greek Composition of various stages of difficulty, and will meet on Fridays, at 3.30 and 2.30 (or at hours to be arranged). More advanced students will be taken separately at hours to be fixed at the commencement of the session.

FEE :—£1 11s. 6d.

*REQUIREMENTS FOR DEGREES.*

*Intermediate Arts Examination:* Course I\* or Course V.

*Ordinary B.A. Examination:*

- (i.) When Greek is a principal subject: Courses II\* and III in successive years.
- (ii.) When Greek is a subsidiary subject: *either* Course II\* or Course III or a second year's course of Hellenistic Greek.

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\* Courses I and II may be taken in the reverse order (Course II followed by Course I).

*M.A. Examination:* Course IV; together with Course III, if not already taken for the B.A.

Candidates who offer Greek alone for the M.A. will be required to show a general knowledge of the Language and Literature and a special knowledge of *four* Greek authors to be selected by themselves and approved by the University. Candidates who offer Greek together with another subject will be required to show a special knowledge of only *two* Greek authors.

The subject of the dissertation required for the M.A. degree should be selected in consultation with the Professor as early in the session as possible.

#### TIME TABLE.

| GREEK.              | Mon. | Tues. | Wed.                   | Thurs. | Fri. |
|---------------------|------|-------|------------------------|--------|------|
| Preliminary Course  | ..   | 2.30  | ...                    | ...    | 2.30 |
| University Courses— |      |       |                        |        |      |
| Course I.           | ...  | ...   | <i>By arrangement.</i> |        | ...  |
| Course II.          | ...  | ...   | 4.30                   | ...    | 4.30 |
| Course III.         | ...  | ...   | 3.30                   | 2.30   | ...  |
| Course IV.          | ...  | ...   | <i>By arrangement.</i> |        | ...  |
| Course V.           | ...  | ...   | 3.30                   | ...    | 3.30 |
| Course VI.          | ...  | ...   | ...                    | ...    | 5.30 |

\* Composition (or at hours to be arranged).



## ENGLISH LANGUAGE AND LITERATURE.

*Professor* : W. MACNEILE DIXON, M.A.; Litt.D., LL.B.  
(Dub.)

*Lecturer* : R. PAPE COWL, M.A. (Dub.)

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### PRELIMINARY COURSE.

Lectures will be given on Shakespere: Julius Cæsar; Milton: Lycidas; L'Allegro; Il Penseroso; Lowell's Essay on Milton.

Mondays and Wednesdays, at 9.30.

FEE:—£2 12s. 6d.

**Composition.**—In this Class there will be a study of Prose Composition. Members of the class will be expected to write Essays on the subjects from time to time suggested. The Lectures will be given during the Winter and Spring Terms at 2.30 on Tuesdays.

FEE:—£1 1s.

[The Sessional Fee for the whole Preliminary Course including History (for which see History Syllabus) is £5 5s.]

### UNIVERSITY COURSES.

#### I.

A. Lectures upon the History of English Literature from 1350 to 1600, upon Literary Forms, and upon English Constitutional History.

B. The following texts:—

*Language and Literature.*

CHAUCER : *Prologue.*

SPENSER : *Faery Queen*, Bk. I.

SHAKSPERE :

*Midsommer Night's Dream.*

*Richard II.*

*Hamlet.*

*Palgrave's Golden Treasury*,  
Bk. I.

*Political Philosophy.*

MOORE : *Utopia.*

BACON : *Essays Of Unity in Religion, Of Simulation and Dissimulation, Of Goodness and Goodness of Nature, Of Seditions and Troubles, Of Superstition, Of Empire, Of Counsel, Of Innovations, Of the True Greatness of Kingdoms and Estates, Of Custom and Education, Of Usury, Of Judicature.*

The lectures will be given on Mondays and Thursdays, at 10.30.

FEE :— £2 12s. 6d.

The lectures on Constitutional History will be delivered by Professor Masterman on Wednesdays and Fridays, at 9.30 during the Winter term. (See p. 321.)

## II.

A. Lectures upon the History of English Literature from 1600 to 1749, and upon Literary Theory.

B. The following texts:—

*English Literature.*

SHAKSPERE : *Julius Caesar*,  
*Macbeth.*

Lamb's Specimens of the  
Elizabethan Dramatists—  
*Sackville and Norton, Kyd*,  
*Peele, Marlowe, Middleton*,  
*Webster, Ford, Jonson*,  
*Beaumont and Fletcher*,  
*Mussinger.*

*Palgrave's Golden Treasury*,  
Bks. II. and III.

MILTON : *Paradise Lost*, Bks. I.  
and II.

DRYDEN : *Absalom and Achi-*  
*tophel.*

POPE : *Essay on Criticism.*

BERKELEY : *Principles of*  
*Human Knowledge.*

*Literary Theory.*

ARISTOTLE : *Poetics* (in trans-  
lation).

JOHNSON : *Life of Milton.*

COLERIDGE : *Lectures on Shake-*  
*spere.*

The lectures will be given on Tuesdays and Fridays at 11.30, and on Thursdays at 9.30.

FEE:—£3 13s. 6d.

### III.

A. Lectures on the History of English Literature from 1740 to 1850, upon the English Language, and upon Literary Theory.

B. The following texts:—

*English Literature.*

*English Language.*

SHAKSPERE: *Henry IV.* Pts. 1 and 2, *Tempest*.

Selections from Chaucer and Middle English Writers, as read in Class.

SHELLEY: *Adonais*.

*Literary Theory.*

WORDSWORTH: Matthew Arnold's Selections.

COLERIDGE: *Biographia Literaria* (parts relating to literary criticism).

Palgrave's *Golden Treasury*, Bk. IV.

ARNOLD: *Essays in Criticism* (First Series), omitting those on Spinoza and Marcus Aurelius.

COLERIDGE: *Ancient Mariner*, *Christabel*.

CARLYLE: *The Hero as Man of Letters*.

TENNYSON: *In Memoriam*, *Ulysses*, *Lucretius*.

BUTLER: *Sermons* (with Preface) upon *Human Nature*, *Compassion*, *The Character of Balaam*, *Resentment*, *Forgiveness of Injuries*, *Self-Deceit*, *The Love of our Neighbour*.

The lectures will be given upon Mondays, Wednesdays, and Thursdays, at 11.30.

FEE:—£3 13s. 6d.

### IV.

Lectures are given upon the compulsory sections (A and B) of the M.A. Examination, and upon such other subjects as are offered by candidates for the M.A. degree.

The Lectures will be given on Tuesdays, Thursdays, and Fridays, at 12.30 p.m.

FEE :—£3 13s. 6d.

VACATION READING.—For the subjects recommended for Vacation Reading in English, see p. 357.

### REQUIREMENTS FOR DEGREES.

*Intermediate Arts Examination* : Course I.

*B.A. Degree.*

Students who take English as a principal subject at the B.A. Degree Examination are required to attend Courses II and III in successive years. Students who take English as a subsidiary subject may select *either* Course II *or* Course III.

*M.A. Degree* : Course IV.

Students who desire to take the M.A. Degree in English alone are required to pass an examination in *four* of the following subjects, of which A and B are compulsory :—

A. History of English Literature.

B. The following texts :—

CHAUCER : *Knight's Tale, Troilus and Cressida.*  
SPENSER : *Shepherd's Calendar.* Tottel's Miscellany.  
SHAKSPEARE : *Romeo and Juliet, King Lear, Anthony and Cleopatra, Winter's Tale.* MILTON : *Paradise Regained.* POPE : *Rape of the Lock.* WORDSWORTH : *Laodamia.* SHELLEY : *Prometheus Unbound.* KEATS : *Hyperion.* BYRON : *Childe Harold*, Cantos 1 and 2.  
ARNOLD : *Sohrab and Rustum.* BROWNE : *Religio Medici.* DRYDEN : *Essay on Satire.* JOHNSON : *Lives of Pope and Gray.* BURKE : *Appeal from the New to the Old Whigs.* LAMB : *Essays.* DE QUINCEY : *Confessions of an English Opium Eater.* RUSKIN : *Lectures on Art.* DOWDEN : *Shakspeare, his Mind and Art.*

C. Germanic Philology, with selected Anglo-Saxon and Middle English Texts, as read in Class.

D. Shakspeare.

E. English Literature studied in its relation either to Italian or French or German Literature.

F. Special study of some one period of Literature to be selected in consultation with the Professor.

G. Literary Theory. The following texts are recommended for study :—

ARISTOTLE : *Poetics*. DANTE : *De Vulgari Eloquentia*, Bk. II.  
 LESSING : *Laokoon*. DU BELLAY : *Défense et Illustration de la Langue française*. VICTOR HUGO : Preface to *Cromwell*. The critical writings of Sidney, Dryden, Johnson, Lamb, Coleridge, Wordsworth, and Arnold.

Students who select English as *one* of the subjects for the M.A. Degree are required to pass an examination in two of the above subjects, of which B is compulsory.

#### SCHOOL OF MODERN LANGUAGES.

Students who select English as a subsidiary subject are required to pass an examination in sections A, B and D of the foregoing list, together with an English Essay.

#### TIME TABLE.

| ENGLISH.    |     |     | Mon.  | Tues. | Wed.  | Thurs. | Fri.  |
|-------------|-----|-----|-------|-------|-------|--------|-------|
| Preliminary | ... | ... | 9.30  | ...   | 9.30  | ...    | ...   |
| Composition | ... | ... | ...   | 2.30  | ...   | ...    | ...   |
| Course I.   | ... | ... | 10.30 | ...   | ...   | 10.30  | ...   |
| Course II.  | ... | ... | ...   | 11.30 | ...   | 9.30   | 11.30 |
| Course III. | ... | ... | 11.30 | ...   | 11.30 | 11.30  | ...   |
| Course IV.  | ... | ... | ...   | 12.30 | ...   | 12.30  | 12.30 |

## FRENCH LANGUAGE AND LITERATURE.

*Professor:* CLOVIS BÉVENOT, M.A.; M.A. (Oxon.).

*Lecturer:* PAUL DEMEY, L. ès-L.

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### PRELIMINARY COURSE.

Mondays and Fridays at 3.30, and Tuesdays at 4.30, or Thursdays at 2.30.

In this course students are prepared for the Matriculation Examination of the University of Birmingham, or of the University of London, and for a satisfactory elementary oral examination.

BOOKS: *Contes et Nouvelles*, edited by Jules Lazare (Hachette), with Spiers' Practical Grammar, and his Rapid Exercises.

FEE:—£3 13s. 6d.

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### UNIVERSITY COURSES.

#### I.

The course is divided into Sections A and B, which meet as follows:—

(a) Mondays at 4.30: Historical French Grammar, Idioms, and Composition.

(b) Section A on Tuesdays, and B on Thursdays at 4.30:

(i.) Reading, Translation, and Critical Appreciation of the following works:—

*J.-B. Rousseau*, Œuvres lyriques (E. Mannel).

*Buffon*, Discours sur le style (Hémon).

*Morceaux Choisis*, par Brunetière et Pellisson (the 18th Century Extracts).

*Half-hours with Modern French Authors* (Prose and Verse), Jules Lazare (Hachette).

(ii.) French Conversation, Dictation, and intelligent reading aloud.

(c) Fridays at 11.30: A rapid general survey of French Literature, and the 18th Century as the specially studied period. (These lectures will be delivered partly in French if found suitable.)

BOOKS RECOMMENDED:—History and Literature of France by Prof. V. Spiers (Rivington); or Primer of French Literature by Prof. Weekley (Blackie).

FEE:—£3 13s. 6d.

N.B.—Those able to follow spoken French with some ease are recommended to enter also for the Thursday 5.45 Réunions Littéraires et Dramatiques, where, among others, all the set books for this Course will be specially dealt with.

## II.

The Lectures are given in French.

(a) Mondays at 10.30: French Literature of the 17th Century. (Special Period.)

(i.) The 17th Century with special preparation of:

*Corneille*, *Le Cid* (Hémon).

*Racine*, *Britannicus* (Bernardin).

*Molière*, *Le Bourgeois Gentilhomme* (Pellisson).

*Morceaux Choisis* par Brunetière et Pellisson (the 17th Century Extracts).

(ii.) Summary of the 17th, 18th, and 19th Centuries.

(b) Wednesdays at 10.30: French Conversation, Papers, and Debates.

(c) Thursdays at 5.45: All the books set for this Course, among others, will be specially dealt with.

(d) Fridays at 10.30: (i.) Advanced French Composition.

(ii.) Rudiments of Philology and of Prosody.

FEE:—£4 4s.

## III.

The Lectures are given in French.

(a) Mondays at 2.30: (i.) Advanced French Composition and Essay writing, and Survey of French Metre and Prose Style. (ii.) French Philology.

(b) Wednesdays at 10.30 : French Conversation, Papers, and Debates.

(c) Thursdays at 5.45 : All the books set specially for this course, among others coming under the rubric of French Literature generally, will be dealt with in detail.

(d) Fridays at 11.30 : French Literature generally from the earliest times to 1600, with special preparation of :

*L. Sudre* : Chrestomathie du Moyen-Age.

*Hatzfeld and Darmesteter* : Morceaux Choisis du 16<sup>e</sup> Siècle.

*Darmesteter* : La Vie des Mots.

FEE :—£4 4s.

#### IV.

The Lectures are given in French.

(a) Fridays at 11.30 : The French Literature from the earliest times to 1600, and in outline, during the 19th century.

FEE :—£1 11s. 6d.

(b) Mondays at 2.30 : (i.) Advanced Composition and Essay Writing ; French Metre and Style ; (ii.) Philology.

FEE :—£1 11s. 6d.

(c) Wednesdays at 10.30 : Papers, Conversation and Debates.

FEE :—£1 11s. 6d.

(d) Wednesdays at 11.30 : French Philology—Lectures on the principles and methods of the Science of Language and the History and Philology of the Romance Languages, with special reference to English and French.

FEE :—£1 11s. 6d.

(e) Mondays at 11.30 : Interpretation, Philological and Critical Analysis of selected Texts of the 14th and 15th Centuries.

FEE :—£1 11s. 6d.



(*f*) Thursdays at 3.30: 19th Century Development in French Poetry *since Lamartine and Victor Hugo*.

FEE:—£1 11s. 6d.

(*g*) Fridays at 12.30: Interpretation, Philological and Critical Analysis of the earlier Texts.

FEE:—£1 11s. 6d.

(*h*) Mondays at 3.30: Lectures on French History and Institutions. This course will consist of (i) lectures on Modern France during the Winter Term, (ii) on the History of France during the Spring Term, and (iii) on Standard Texts on French Institutions and Internal Evolution during the Summer Term.

(i) A set of Lectures on "MODERN FRANCE" will be delivered *in French* on Mondays at 3.30 p.m. during the Winter term, commencing on Monday, October 10th.

FEE for the set, 10s. 6d.

(For the Syllabus see next page).

(ii) A set of Lectures on the "HISTORY OF FRANCE" will be delivered *in French* on Mondays at 3.30 p.m. during the Spring Term, commencing on Monday, January 16th, 1905.

FEE for the set, 10s. 6d.

(iii) A Series of lectures during the Summer Term will be arranged for by Professor Bévenot, and devoted to reading portions of French texts on the Evolution of Internal Institutions in France.

FEE for the set, 10s. 6d.

Books to consult will be recommended at the first lecture.

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*MODERN FRANCE.—SYLLABUS OF THE WINTER TERM LECTURES.*

Territorial formation : Plains, plateaus, and mountains ; France over seas.

Historical Survey of *political development* : the ancient régime, the revolution, the 19th Century and after—the existing Constitution : universal suffrage, the Senate, the Chamber of Deputies, the National Assembly, Parliamentary Procedure ; the President of the Republic, the Ministers and their responsible status.

Historical origin of *administrative centralisation* ; how Ministerial departments work ; the Council of State. *Local Administrations* : the Department, the Prefect and the Council General ; the Arrondissement and the Sub-Prefect ; the Canton ; the Commune, the Mayor, the Municipal Council. The supervision of the Central Administration.

*Military and Naval France* : Conscription, officers, military schools ; discipline, court-martials.—Maritime prefectures ; fighting fleet ; conscription of sailors ; officers ; marines.

*Commercial Navy* : Ships entering and clearing from chief ports ; mail service ; ocean fisheries.

Characteristics of *French Legislation* ; its origins, the codes, later Laws, Nationality, the Family, Property, Inheritance.—Police, Penal Procedure, Punishments, “Récidivistes,” Penal Establishments, Penal Colonies—Civil and Criminal Justice, Judges and “Ministère Public,” Jury, Barristers—the organs of Administrative Justice. Special Courts. Commercial Courts.

*Economic France* : Agriculture ; sub-division of the land : methods. Agricultural manufacture. Wages, Mines and Factories—roads, canals, railways—Home and Foreign trade ; customs system—posts and telegraphs—Money : Metrical system—Banking ; Bank of France ; Savings’ Banks ; Public Pawnshops ; Public Wealth ; Communal, Departmental, and State Revenue and Expenditure ; Direct and Indirect Taxes, Monopolies and Domain Lands ; Public Debt ; Administrative

Expenditure. The Budget: its Preparation, Voting, Disposal; its Control by the Cour des Comptes and by Parliament.

*Education and Instruction*: A Contrast—Primary, secondary and higher teaching establishments; schools; collèges and lycées; “Faculties”—Free education—Teaching staffs—“Baccalauréat,” and University degrees—Education of women—Special and professional higher schools—the French equivalent for the English Royal Society; the Institute of France.

*Colonial France*: Historical Survey of the Formation of the French Colonial Empire. Present conditions in Algeria, Tunis, Senegal and Upper Niger; French Coast of Guinea; Gaboon and French Congo; Madagascar and Islands of the Indian Ocean; Obock; India and Indo-China; New Caledonia and French Polynesia; New-foundland banks; French Antilles and Guinea.

*Ecclesiastical France*: Liberty of conscience and of Public Worship; the Catholic Church: its struggles with the Civil Power; the Concordat of 1801 as working at present; the organisation of Catholic Worship, the secular Clergy, Religious Communities—Reform and Lutheran Churches—Jewish Church—Mahometan Church.

*France and England*: Ancient antagonism between French and English interests—Hundred years’ war—Colonial wars—Wars of the Revolution and the Empire—Modern period: improved relations, the Crimea, “l’entente cordiale” during the Second Empire and the Third Republic—Nefarious influence of the most blatant section of an irresponsible Press on both sides. Trade and navigation between the two powers.

N.B.—The Fourth Year Students are recommended to enter for the Thursday 5.45 Réunions Littéraires et Dramatiques.

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#### REQUIREMENTS FOR DEGREES.

*Intermediate Examination in Arts*: Course I.  
*B.A. Degree.*

(a) When French is a Principal Subject : Courses II. and III. in successive years.

(b) When French is a Subsidiary Subject : Course II.  
*M.A. Degree.*

(a) Candidates who desire to take the M.A. Degree in French alone will be required to take the following eight subjects :—

- (i.) French Essay and Composition.
- (ii.) Unseen Translation.
- (iii.) Selected Authors.
- (iv.) History of French Literature.
- (v.) French History and Institutions.
- (vi.) Old and Middle French Texts.
- (vii.) French Philology.
- (viii.) A selected period of French Literature.

(b) Candidates who desire to take the M.A. Degree in French together with another subject will be required to select four subjects from the above list, of which (i.) and (iii.) are compulsory.

#### SCHOOL OF MODERN LANGUAGES.

The following Courses are recommended :

- (a) If French is the principal subject :—  
First year : Courses II, III, IV<sub>e</sub>.  
Second year : Courses III, IV<sub>a</sub>, c, g, f.  
Third year : Course IV.
- (b) If French is the subsidiary subject :—  
First year : Courses II and III<sub>e</sub>.  
Second year : Courses III and IV<sub>a</sub>.  
Third year : Courses IV<sub>a</sub>, b, c, e.

*Réunions Dramatiques et Littéraires.*—Thursdays at 5.45, during the Winter and Spring Terms. At these Réunions Authors and subjects, set and others, will be read, performed, or discussed *in French* by those attending, the Professor and Monsieur Paul Demey.

FEE :—£1 1s. for the two terms.

## TIME TABLE.

| FRENCH.            |     |     | Mon.                  | Tues. | Wed.  | Thurs.                  | Fri.             |
|--------------------|-----|-----|-----------------------|-------|-------|-------------------------|------------------|
| Preliminary Course | ... | ... | 3.30                  | 4.30  | ...   | 2.30                    | 3.30             |
| Course I.          |     |     |                       |       |       |                         |                  |
| Section A.         | ... | ... | 4.30                  | 4.30  | ...   | ...                     | 11.30            |
| Section B.         | ... | ... | 4.30                  | ..    | ...   | 4.30                    | 11.30            |
| Course II.         | ... | ... | 10.30                 | ...   | 10.30 | 5.45                    | 10.30            |
| Course III.        | ... | ... | 2.30                  | ...   | 10.30 | 5.45                    | 11.30            |
| Course IV.         | ... | {   | 11.30<br>2.30<br>3.30 | }     | ...   | { 10.30<br>3.30<br>5.45 | { 11.30<br>12.30 |

## GERMAN LANGUAGE AND LITERATURE AND GERMANIC PHILOLOGY.

*Professor:* HERMANN GEORG FIEDLER, M.A.; Ph.D.

*Lecturer:* FRANCIS E. SANDBACH, B.A., Ph.D.

### PRELIMINARY COURSE.

Mondays, Thursdays, and Fridays, at 2.30.

In this Course students are prepared for the Matriculation Examination of the University of Birmingham.

Kuno Meyer, German Grammar (Swan Sonnenschein)

E. A. Sonnenschein and H. G. Fiedler, First German Reader and Writer (Swan Sonnenschein).

W. Stuart Macgowan, Second German Reader and Writer (Swan Sonnenschein).

Wildenbruch, Das edle Blut (Macmillan).

FEE:—£3 13s. 6d.

Students who have not passed in German at the Matriculation Examination, but wish to take it at the Intermediate Examination at the end of their first University year, should attend the Preliminary Course during the first two terms and the first University Course during the third term. An additional class of one hour per week (Tuesdays, at 2.30) throughout the session will be arranged for them. (See regulations for students in the Faculty of Commerce, p. 334).

FEE for this class:—£1 11s. 6d.

### UNIVERSITY COURSES.

#### I.

(a) Mondays at 3.30: German Accidence, Syntax, and Composition.

Kuno Meyer, German Grammar (Swan Sonnenschein)

H. G. Fiedler, Third German Reader and Writer (Swan Sonnenschein).

(b) Thursdays at 3.30 : Conversation based on Selected Poems of Goethe and Schiller, Dictation, and Translation at sight.

(c) Fridays at 3.30 : Reading and Translation of:—Wildenbruch, *Ein Opfer des Berufs*; *Mein Onkel aus Pommern* (Whittaker and Co.); Stifter, *Das Haidedorf* (Heath and Co.).

FEE :—£3 13s. 6d.

## II.

(a) Mondays at 3.30 : Reading of:—Riehl, *Culturge-schichtliche Novellen* (Pitt Press); Heyse, *Kolberg* (Rivington and Co.); Chapters 51 to 57 of Kluge, *Geschichte der deutschen National Litteratur*.

From the middle of the second term Students of Commerce will read typical examples of German commercial and industrial literature, and will meet at 3.30 on Tuesdays, instead of Mondays.

(b) Thursdays at 3.30 : Conversation based on Selected Poems of Goethe and Schiller, and on Outlines of German Literature, 1748 to 1832.

(c) Fridays at 4.30 : Composition, Revision of Accidence and Syntax.

FEE :—£3 13s. 6d.

## III. A.

(a) Mondays at 4.30 : Reading of :—Schiller's *Jungfrau von Orleans*, Goethe's *Iphigenie*, and Wildenbruch's *Danaide*.

(b) Tuesdays at 4.30 : Composition.

(c) Thursdays at 4.30 : Conversation based on Chapters 1-50 of Kluge's *Geschichte der deutschen National Litteratur* and on Modern German Poetry.

In the Classes of Course III. only German will be spoken.

FEE :—£3 13s. 6d.

## III. B.

(d) Tuesdays at 4.30: Commercial Correspondence,  
For third year students of Commerce.

FEE:—£1 11s. 6d.

## IV.

*LITERATURE.*

(a) Tuesdays at 3.30: Lectures (delivered in German)  
on Leading Writers of the Nineteenth Century.

DEUTSCHE DICHTER DES NEUNZEHNTEN JAHRHUNDERTS.

Franz Grillparzer:

Sappho, Goldenes Vliess, Des Meeres und der Liebe  
Wellen, Der Traum ein Leben.

Friedrich Hebbel:

Judith, Genoveva, Herodes und Mariamne, Agnes  
Bernauer, Gyges und sein Ring, Die Nibelungen.

Otto Ludwig:

Der Erbförster, Die Makkabäer, Zwischen Himmel und  
Erde.

Friedrich Halm:

Griseldis, Sohn der Wildnis, Fechter von Ravenna.

Gustav Freytag:

Journalisten, Soll und Haben, Verlorene Handschrift,  
Bilder aus der deutschen Vergangenheit, Die Ahnen.

Friedrich Spielhagen:

Problematische Naturen, In Reih und Glied, Hammer  
und Amboss, Sturmflut.

Gottfried Keller:

Der grüne Heinrich, Leute von Seldwyla, Züricher  
Novellen.

Fritz Reuter:

Franzosentid, Stromtid, Festungtid.

Theodor Storm:

Immensee, Aquis submersus.

FEE:—£1 11s. 6d.



*HISTORY AND INSTITUTIONS.*

(b) Fridays at 3.30, Winter Term : Lectures (delivered in English) on the Institutions of Modern Germany.

The following subjects will be dealt with :—

The Constitution of the German Empire. The relation of the various German States to the Empire. The constitutional rights and prerogatives of the Kaiser. The Reichskanzler and the Secretaries of State. The Bundesrat and Reichstag. Parties in the present German Parliament. The constitutions of Prussia and the other German States.

The making of Modern Germany. The old Empire and the new, a comparison. The Zollverein. The North German Confederation. Bismarck. The Franco-German war. German colonial policy.

The German country. Advantages and dangers of Germany's geographical position. Different character of North and South, East and West. Physical features and natural resources. The principal German towns.

Administration and Institutions. The Reichsgericht and Judicature. Local Government. Posts and Telegraphs. Railways and Canals. Customs.

The German Army and Navy. Conscription, and its influence on national life, character, and education. The training of the German Officer.

Germany's Educational System. Elementary and Secondary Schools. Technical and Commercial Education. The German Universities. The training of the Teachers. Student Life.

German agriculture, commerce, and manufacture.

Social problems and social legislation. The German Press.

Church and religious life. Public and social life.

Art culture in Germany. Music and the Drama. Modern German architecture and handicraft. Modern German Painters and Sculptors.

The lectures will be illustrated by maps, diagrams and limelight views.

FEE :—10s. 6d.

Spring Term : Lectures (delivered in English) on German History from the Oldest Times to the Refounding of the Empire in 1871.

FEE :—10s. 6d.

### PHILOLOGY.

(c) Fridays at 4.30: Germanic Philology. Lectures will be given (in English) on the principles and methods of the Science of Language and the history and philology of the Germanic languages, with special reference to the relation of English and German. The Gothic version of the Gospels will be read.

FEE :—£1 11s. 6d.

(d) Thursdays at 5.30 : Old High German Grammar, with Interpretation of O.H.G. texts.

FEE :—£1 11s. 6d.

(e) Fridays at 5.30: Introduction to the study of Middle High German and Historical German Grammar. Reading of easy M.H.G. texts.

FEE :—£1 11s. 6d.

(f) Thursdays at 2.30 : Interpretation of more difficult M.H.G. and sixteenth century texts.

FEE :—£1 11s. 6d.

### REQUIREMENTS FOR DEGREES.

*Intermediate Examination in Arts : Course I.*

*B.A. Degree.*

(a) When German is a principal subject : Courses II and III, in successive years.

(b) When German is a subsidiary subject : Course II.

*M.A. Degree.*

(a) Candidates who desire to take the M.A. Degree in German alone will be required to take the following *eight* subjects :—

- (i.) German Essay and Composition.
- (ii.) Unseen Translation.
- (iii.) Selected Authors.
- (iv.) History of German Literature.
- (v.) German History and Institutions.
- (vi.) Old and Middle High German Texts.
- (vii.) Germanic Philology.
- (viii.) A selected period of German Literature.

(b) Candidates who desire to take the M.A. Degree in German together with another subject will be required to select four subjects from the above list, of which (i.) and (iii.) are compulsory.

## SCHOOL OF MODERN LANGUAGES.

The following courses are recommended :

(a) If German is the principal subject :—

First year : Courses II, III, IVb, c.

Second year : Courses III, IVa, c, d, e, f.

Third year : Course IV.

(b) If German is the subsidiary subject :

First year : Courses II and IIIa.

Second year : Courses III and IVa.

Third year : Courses IVa, b, c, e.

## ANGLO-SAXON.

Elementary, Tuesdays at 5.30. Advanced, Wednesdays at 5.30, or by arrangement.

The books set for the various examinations in the University of London will be studied.

FEE :—£1 11s. 6d. for either course.

Students taking up the study of Anglo-Saxon should also attend the lectures on Germanic Philology (IV, e.).

FEE :—£1 11s. 6d.

TIME TABLE.

| GERMAN.                   | Mon.     | Tues. | Wed. | Thurs.        | Fri.                  |
|---------------------------|----------|-------|------|---------------|-----------------------|
| Preliminary Course        | ... 2.30 | ...   | ...  | 2.30          | 2.30                  |
| Additional Prelim.        | ... ..   | 2.30  | ...  | ...           | ...                   |
| Course I. ... ..          | ... 3.30 | ...   | ...  | 3.30          | 3.30                  |
| Course II. ... ..         | ... 3.30 | ...   | ...  | 3.30          | 4.30                  |
| Course III. ... ..        | ... 4.30 | 4.30  | ...  | 4.30          | ...                   |
| Commercial Correspondence | ...      | 4.30  | ...  | ...           | ...                   |
| Course IV. ... ..         | ... ..   | 3.30  | ...  | (2.30<br>5.30 | (3.30<br>4.30<br>5.30 |
| Anglo-Saxon               | ... ..   | 5.30  | 5.30 | ...           | ...                   |

## SPANISH.

*Lecturer* : F. DE ARTEAGA, M.A. (Oxon.)

## I.

Tuesdays and Thursdays, at 10.30 ; Saturdays, at 11.30.

FEE :—£3 13s. 6d.

WINTER TERM.—Accidence. Elementary Syntax, Conversation. *Hundred Passages for Translation* (Hirschfeld).

SPRING TERM.—Advanced Syntax, Idioms. Perez Galdós, *Realidad*.

SUMMER TERM.—Composition, Proverbs. Nuñez de Arce, *Gritos del combate*.

## II.

Spring Term.—Tuesdays, at 5.30.

## SPANISH AMERICA.

A course of ten lectures :

1. The physical features of the country as a whole and of the several states.
  2. The people and their character.
  3. Discovery and colonisation.
  4. Independence. Formation of the several states.
  5. Development during the Nineteenth Century.
  6. Foreign influences—financial and commercial.
  7. The Argentine and Chili.
  8. Mexico.
  9. The future relations of Spanish America and the United States.
  10. The trade of the Midlands with Spanish America.
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## ITALIAN.

*Lecturer*: F. DE ARTEAGA, M.A. (Oxon.)

## I.

Tuesdays and Thursdays, at 11.30 ; Saturdays, at 12.30.

FEE :—£3 13s. 6d.

WINTER TERM.—Accidence, Elementary Syntax, Conversation. *Hundred Passages for Translation* (Hirschfeld).

SPRING TERM.—Advanced Syntax, Idioms. *De Amicis, Cuore*.

SUMMER TERM.—Composition. Proverbs. Manzoni, *I Promessi Sposi*.

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## PHILOSOPHY.

*Professor* : JOHN HENRY MUIRHEAD, M.A., LL.D.

*Lecturer* : HELEN MARION WODEHOUSE, M.A.

## UNIVERSITY COURSES.

## I.

## Logic.

The aim of this Course is to familiarise students with the general conditions of right reasoning in ordinary life, and in observational and experimental science. A good deal of time is given to the analysis of familiar types of argument.

*Lecture Days* :—Mondays, Tuesdays and Thursdays, at 9.30.

NATURE AND SCOPE OF LOGIC : Judging and Reasoning, and the General Laws that underlie them. General Analysis of the Process of Reasoning.

DOCTRINE OF TERMS : Kinds of Terms ; Connotation and Denotation ; Definition of Terms and Division of Kinds as aids to Thought.

PROPOSITIONS : The Interpretation of Propositions : Categorical, Hypothetical, Disjunctive Propositions ; Opposition and Implication of Propositions.

DEDUCTIVE INFERENCE : Syllogism : Laws and Forms of ordinary Syllogism ; Conditional and Disjunctive Syllogism ; Trains of Reasoning ; Non-Syllogistic Inference ; Fallacies of Deductive Inference.

INDUCTIVE INFERENCE : General Nature of Induction ; Methodical Observation ; Analysis of Idea of Causal Sequence ; Explanation ; Analogy ; Hypothesis and Theory ; Fallacies of Inductive Inference.

THE NATURE OF THOUGHT.—Judgment and the Chief Types of Judgment ; the Laws of Thought ; Knowledge as a System ; the Nature and Conditions of Inference.

BOOKS RECOMMENDED FOR CONSULTATION : Mill's *System of Logic* ; Keynes's *Formal Logic* ; Venn's *Empirical Logic* ; Jevons's *Principles of Science*.

FEE :—£3 13s. 6d.

PREPARATORY READING.—Students intending to take this course should make themselves familiar with Jevons's *Primer* (Macmillan), and with the chapters 3 to 9 and 13 to 15 in *An Introductory Logic*, by Edwin Creighton (Macmillan).

## II.

### Psychology.

This Course is given in alternate years beginning October, 1905. Its aim is to give such an analysis of the chief elements in consciousness as may form an introduction to Mental Philosophy on the one hand and to the Principles and Practice of Education on the other.

*Lecture Days*.—Mondays, Wednesdays and Fridays, at 12.30.\*

SCOPE AND METHOD OF THE SCIENCE: What is meant by Mind; Consciousness and Subconsciousness; Relation of Psychology to other Sciences; Psychological Methods.

BODY AND MIND: Outlines of Nervous System†; Relation of Body and Mind.

GENERAL ANALYSIS OF MIND: Knowledge, Feeling, and Action as Modes of Consciousness; their general relation to one another.

KNOWLEDGE: Elementary processes implied in Knowledge: Attention, Retention and Habit, Discrimination and Assimilation. The SENSES: General Treatment; Law of Relativity. PERCEPTION: Our knowledge of Things in Space and Time. IDEAS: Association; Memory; Imagination. CONCEPTION: General Nature of Conceptual Thinking; Language: The Origin of Language; Relation of Language to Thought; Categories of Thought; The Idea of a Physical World: the Idea of Self.

FEELING: General Nature and Conditions of Pain and Pleasure. The Affective side of Perceptive and Ideational Experience. Emotion. The Emotions and their Expression. The Sentiments.

ACTIVITY: Instinctive and Automatic Action. Voluntary Action; Desire and Motive; Deliberation and Choice. The Freedom of the Will.

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\*NOTE.—Some of these hours may be altered to suit the convenience of Students.

†Students taking Psychology as a principal subject for the B.Sc. Degree will be required to attend a course of Lectures on the Physiology of the Nervous System.



BOOKS RECOMMENDED FOR CONSULTATION: Stout's *Manual of Psychology*; Höffding's *Outlines of Psychology*; James's *Principles of Psychology*; Wundt's *Outlines of Psychology*; Ward's Art. in *Encycl. Brit. Psychology*, with Supplement.

FEE:—£3 13s. 6d.

PREPARATORY READING.—Students intending to take this course should read Stout's *Groundwork of Psychology* (University Tutorial Press).

### III.

#### Moral Philosophy.

This Course is given in alternate years, beginning October, 1904. Its aim is to give an outline of the leading principles of moral and social obligation as at present understood and to illustrate them by bringing them into connection with typical historical theories and modern problems.

*Lecture Days*:—Monday and Wednesday, at 12.30. On Friday a Discussion Class will be held at an hour to suit students.

- I. GENERAL PRINCIPLES. SCOPE AND METHOD OF STUDY. Relation to kindred studies of Sociology and Economics. The PSYCHOLOGY OF THE WILL. Desire and Will. The Idea of Self. The Freedom of the Will. The nature and origin of Moral Approval. The LOGIC OF THE WILL. The Standard of Moral Judgment in the most comprehensive idea of the Self. Egoism and Altruism. The Happiness Theory. CONTENTS OF THE GOOD. The moral order as it exists. The Social Ideal. Science and Culture.
- II. SOCIAL ETHICS. ORGANISED SOCIETY AS THE EXPRESSION OF WILL. The Social Organism. Anticipations of modern theory in Hobbes, Locke, Rousseau. LAW AND MORALITY. The basis of Right. Rights and Duties. Who have Rights? Are there Natural Rights? The right of resistance to Law. PHASES OF ORGANISED SOCIETY. 1. The Family. Natural basis and ethical purpose of the Family. The State's interest in the Family. History and present condition of the Family. 2. INDUSTRIAL SOCIETY. Alleged course of development from Status and Contract. The relation between Freedom and Coercion. Relation of Contract to

Status and Legislation. *a.* The System of Wants. Standard of Life. Comfort and Luxury. *b.* Division of Labour in Modern Society. Class distinctions. *c.* Private property. Ethical basis. Individualism and Communism. Modern Socialism. 3. THE STATE. The Modern State. The basis, end, and limit of State Action. Theory of Punishment. 4. BEYOND THE STATE. The Ideal of a Federation of States. Present Tendencies.

III. INDIVIDUAL MORALITY: The Unity of the Virtues: PERSONAL VIRTUES: Courage; Temperance; Truthfulness; SOCIAL VIRTUES: Justice; Charity.

IV. REALITY OF GOOD AND EVIL.

BOOKS RECOMMENDED FOR CONSULTATION: Bradley's *Ethical Studies*; Green's *Prolegomena to Ethics* and *Lectures on Political Obligation*; Bosanquet's *Philosophical Theory of the State*; Aristotle's *Ethics* (Peters).

FEE:—£3 13s. 6d.

PREPARATORY READING: Muirhead's *Elements of Ethics*.

*B.A. Degree.*

1. For Candidates taking Philosophy as a subsidiary subject, having already taken Logic at the Intermediate: either Course II or Course III. For candidates who have not taken Logic: either Course I, along with Bosanquet's *Essentials of Logic*, or Course II, or Course III.

2. For Candidates taking Philosophy as a principal subject, having already taken Logic at the Intermediate Examination: Courses II and III in successive years.

For Candidates who have not taken Logic at the Intermediate Examination, any two of Courses I, II, III, in successive years, with book work as above.

A second Philosophical subject may be taken along with any other Philosophical subject as a second subsidiary subject.

*B.Sc. Degree.*

1. For Candidates taking Psychology as a subsidiary subject: Course II, with Külpe's *Outlines of Psychology*, Part I.

2. For Candidates taking Psychology as a principal subject: Course II, with Külpe's Outlines of Psychology, and sections 3, 6, 7 of Course I in Systematic Physiology. (See Faculty of Medicine.)

*M.A. Degree.*

1. Candidates taking Philosophy alone for the M.A. Degree will be examined in:

- (1) **PSYCHOLOGY**: Ward's Article on Psychology (Encyclop. Brit. with Supplement); Stout's Analytic Psychology and Manual of Psychology; James's Principles of Psychology.
- (2) **LOGIC AND METAPHYSICS**: Mill's System of Logic; Bradley's Logic; Bosanquet's Logic; Bradley's Appearance and Reality; Wallace's Logic of Hegel with Prolegomena; Taylor's Elements of Metaphysics.
- (3) **MORAL AND POLITICAL PHILOSOPHY**: Plato's Republic; Aristotle's Ethics; Kant's Theory of Morals (Abbott); Green's Prolegomena to Ethics; Hegel's Philosophy of Law (Dyde's English Translation). Bosanquet's Philosophical Theory of the State.
- (4) The General History of Philosophy, together with portions of important writers to be read under the direction of the Professor, and the special history of one of the above departments of Philosophy.

2. Candidates taking Philosophy together with another subject for the M.A. Degree will be examined in:

- (1) **PSYCHOLOGY**: Ward's Article on Psychology (Encyclop. Brit. with Supplement); Stout's Analytic Psychology and Manual of Psychology.
- (2) **LOGIC AND METAPHYSICS**: Mill's System of Logic; Wallace's Logic of Hegel with Prolegomena; Bosanquet's Logic.
- (3) **MORAL PHILOSOPHY**: Aristotle's Ethics; Green's Prolegomena to Ethics; Hegel's Philosophy of Law (Dyde's English Translation). Bosanquet's Philosophical Theory of the State.
- (4) The General History of Philosophy, with portions of important writers to be read under the direction of the Professor.

TIME TABLE.

| PHILOSOPHY.            | Mon.  | Tues. | Wed.  | Thurs. | Fri.  |
|------------------------|-------|-------|-------|--------|-------|
| Course I. ... ..       | 9.30  | 9.30  | ...   | 9.30   | ..    |
| Course II. or III. ... | 12.30 | ...   | 12.30 | ...    | 12.30 |

# THEORY AND PRACTICE OF EDUCATION.

UNIVERSITY COURSES.

## I.

ELEMENTARY COURSE IN PSYCHOLOGY AND LOGIC.

*Professor:* JOHN H. MUIRHEAD, M.A., LL.D.

*Lecturer:* HELEN M. WODEHOUSE, M.A.

*Lectures:*—Tuesdays and Fridays, at 10.30; and Wednesdays, at 9.30 during Spring and Summer Terms only.

## Syllabus.

### ELEMENTS OF PSYCHOLOGY.

Body and Mind. Elements in Mind. The Senses and their Training. Perception and Observation. Ideas and their Sequence. Memory and the Training of Memory. Fancy and Imagination. Conception and Thinking. Language and Conception. Feeling and the Feelings. Conditions and Effect of Feeling in general. Emotion and its Expression. The Sentiments and their Training. Interest. Instinct. Will and Conduct. Habit and Character.

TEXT BOOK RECOMMENDED.—James's Text Book of Psychology (selected chapters).

### ELEMENTS OF LOGIC.

The Art of Thinking. Terms and their Meaning. The Analysis of Judgments. Kinds of Judgments. Reasoning. Types of Reasoning. Syllogism. Analogy. Analysis of Observation and Experiment. Hypothesis and Verification.

TEXT BOOK RECOMMENDED.—Creighton's Introductory Logic (Macmillan).

Lectures will be given in connection with this Course on Plato's Republic, Books II-IV. (Bosanquet's Education of the Young). Hour to be arranged.

FEE:—£3 3s.

## II.

## THEORY AND PRACTICE OF TEACHING.

*Lecturers:* { FRANK ROSCOE.  
ANNE HOLLINGWORTH JOYCE, B.A.

*Lectures:*—Wednesdays, 10.30 and 11.30.

*Tutorial Classes:*—Tuesdays, 10.30 ; Mondays, 11.30.

*Criticism Lessons:*—Wednesdays, 2.30 to 4.30 ;  
Fridays, alternately, 9.30 to 11.30 and 2 to 4.

These hours are for women students ; they are subject to alteration in case of men students.

The Course in Theory and Practice of Teaching includes in addition to the above not less than 75 hours of school practice per year.

The whole Course may extend over two years.

**Syllabus.**

## WINTER TERM.

*Aims of Education, past and present.* Development of Modern Ideals of Education. *Method:* Necessary Stages of Rational Method. Apperception of Individual Notions. Transition from Individual to General Notions. The Return from General to Individual Notions. Interest and its bearing on Education. Theory of the "Five Formal Steps." Notes of Lessons.

## SPRING TERM.

*Curricula and choice of subjects of instruction.* *Humanistic studies.* General treatment. Mother tongue. History. Literature. Foreign Language. Drawing. *Naturalistic studies.* General treatment. Object lessons. Elementary science lessons. Geography. Arithmetic and Geometry. Association of studies. Concentration schemes.

## SUMMER TERM.

*Physical education, aims and methods.* *School organisation and administration.* School Hygiene. Discipline, its basis, practical aids.

## TEXT BOOKS RECOMMENDED—

Talks to Teachers: James.

School Hygiene: Hope and Brown.

Teaching and Organisation: P. A. Barnett.

Lectures on Teaching: Fitch.

Stimulus: Sidgwick.

FEE:—£4 4s.

## III.

## HISTORY OF EDUCATIONAL IDEAS.

*Lecturer*: FRANK ROSCOE.*Lectures*:—Three hours per week by arrangement.**Syllabus.**

## WINTER TERM.

*Greek Education*: Music and Gymnastic. Theories of Plato, Aristotle, Xenophon.*Roman Education*: Early Period. Theories of Quintilian.*Medieval Education*: Scholasticism. Trivium and Quadrivium. Rise of Universities. Abelard.

## SPRING TERM.

*The Renaissance*: Classicism. Vittorino da Feltre. Erasmus. Luther.*Teaching of Languages*: Sturm. The Jesuits. The Jansenists. Ascham. La Salle.*Revolt from Classicism*: Rabelais. Montaigne. Fénelon. Comenius. Milton. Locke.

## SUMMER TERM.

*18th and early 19th Century*: Return to Nature. Rousseau. Kant. Pestalozzi. Froebel.*19th Century Education*: Bell. Lancaster. Rise of Scientific Psychology. Herbart. Bain. Spencer. Modern tendencies.*Special Period for 1905*: Greek Education.

## TEXT BOOKS RECOMMENDED:

The Educational Ideal (F. O. Munroe).

*General*: History of Pedagogy (Compayré).

Educational Reformers (Quick).

[Students are also required to obtain adequate acquaintance with the original authorities as directed during the lectures].

*For Special Period*: Aristotle (Davidson).

Greek Education (Mahaffy).

Plato's Republic (Trans. Davies and Vaughan).

Theory of Education in Plato's Republic (Nettleship).

FEE:—£3 13s. 6d.

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**REQUIREMENTS FOR DEGREES.***Intermediate Science or Arts Examination*: Courses I and II.*B.Sc. or B.A. Degree* (subsidiary subject): Course III.

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## HISTORY.

*Professor* : J. H. B. MASTERMAN, M.A. ; M.A. (Cantab.)

### PRELIMINARY COURSE.

Outlines of English History, with special reference to Green's *Short History* of the English People.

*Lecture Days* : Tuesdays and Thursdays, 9.30.

FEE :—£2 12s. 6d.

### UNIVERSITY COURSES.

#### I.

### MODERN EUROPEAN HISTORY.

#### A. European History, 1600—1789.

*Lecture Days* : Mondays and Wednesdays, 12.30.

##### WINTER TERM.

Europe in 1600. The Thirty Years War. The Supremacy of France. Louis XIV. The Rise of Prussia.

##### SPRING TERM.

The Eastern Question. Russia under Peter the Great. The Spanish Succession. The Regency in France. The War of the Austrian Succession. Frederick the Great.

##### SUMMER TERM.

France under Louis XV. The War of American Independence. Europe in the Eighteenth Century.

FEE :—£2 12s. 6d.

#### B. European History from 1789.

*Lecture Days* : Mondays and Wednesdays at 11.30.

##### WINTER TERM.

THE ERA OF REVOLUTION, 1789-1815. Europe in 1789. The French Revolution. Rise and Career of Napoleon. The Congress of Vienna.

##### SPRING TERM.

THE ERA OF REACTION, 1815-1860. Metternich and the Holy Alliance. Revolutions of 1830 and 1848. Napoleon III. The Crimean War.

##### SUMMER TERM.

THE ERA OF PROGRESS. The Union of Italy. The Founding of the German Empire. The American Civil War. Modern Europe and its problems.

FEE :—£2 12s. 6d.



## II.

## British Institutions.

*Lecture Days:* Wednesdays and Fridays at 9.30.

## WINTER TERM.

THE BRITISH CONSTITUTION: Origin and Development of the Constitution; King and Parliament; the Cabinet; Privy Council.

## SPRING TERM.

THE BRITISH CONSTITUTION. Judicature. Local Government. Parish and County Councils; Poor Law Administration; Education.

## SUMMER TERM.

COLONIAL CONSTITUTIONS. Constitutional System of the United States. Imperial Federation.

FEE:—£2 12s. 6d.; Winter Term only, £1 1s.

## III.

## The Expansion of England.

*Lecture Days:* Tuesdays, 10.30.

FEE:—£1 1s.

One lecture a week during the Spring and Summer terms, dealing with the growth of the British Colonial Empire.

TEXT BOOKS:—Seeley: Expansion of England. Egerton Origin and Growth of English Colonies.

## IV.

## A. Outlines of the History of the First Five Christian Centuries.

*Lecture Days:* To be arranged.

## WINTER TERM.

The Empire in the First Century. Administrative system. Religious and Political Conditions. History of the Empire to the Accession of Diocletian.

## SPRING TERM.

History of the Empire from the Accession of Diocletian to the Death of Constantine. Rise and Progress of the Church to the Council of Constantinople.

## SUMMER TERM.

History of the Empire from the death of Constantine to the fall of the Western Empire in A D. 476.

FEE:—£2 12s. 6d.

## B. Authorities for the History of the First Five Christian Centuries.

*Lecture Days*: Mondays and Wednesdays, at 3.30.

A selection of authorities will be studied (in translation), including the following:—Tacitus: *Histories*, *Agricola*, *Germania*; Pliny's *Letters*; Tertullian's *Apology*. Marcus Aurelius: *Meditations*. Eusebius: *Ecclesiastical History*. Socrates: *Ecclesiastical History*; Selections from Athanasius. Augustine: *Confessions*, *City of God*; and the passages included in Gwatkin's *Selections from Early Christian Writers*.

FEE:—£2 12s. 6d.

## V.

## M.A. COURSE.

The Reign of Louis XIV., with special reference to the foreign policy of France.

*Lecture Days*: Wednesdays, at 2.30.

FEE:—£1 11s. 6d.

## REQUIREMENTS FOR DEGREES.

*Intermediate Arts Examination*: Course I B, or Course II, together with Course III.

*B.A. Degree.*

Course I A and B, or Course IV A and B as a principal subject. Either part of Course I, or Course IV A as a subsidiary subject.

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## TIME TABLE.

| HISTORY.           | Mon. | Tues. | Wed.                   | Thurs. | Fri.  |
|--------------------|------|-------|------------------------|--------|-------|
| Preliminary Course | ...  | ...   | 9.30                   | ...    | 9.30  |
| Course I. A        | ...  | ...   | 12.30                  | ...    | 12.30 |
| Course I. B        | ...  | ...   | 11.30                  | ...    | 11.30 |
| Course II.         | ...  | ...   | ...                    | 9.30   | 9.30  |
| Course III.        | ...  | ...   | 10.30                  | ...    | ...   |
| Course IV. A       | ...  | ...   | <i>To be arranged.</i> |        |       |
| Course IV. B       | ...  | ...   | 3.30                   | ...    | 3.30  |
| Course V.          | ...  | ...   | ...                    | 2.30   | ...   |

## HEBREW.

*Lecturer:* C. K. POOLER, M.A., B.D. (Dub.), M.R.I.A.

### UNIVERSITY COURSES.

*Lecture Days:* Wednesdays and Fridays, at 11.30.

#### I.

#### ELEMENTARY HEBREW GRAMMAR, COMPOSITION AND TRANSLATION.

TEXT BOOK.—Introductory Hebrew Grammar. A. B. Davidson. (T. and T. Clark.) Selected book for translation. Genesis ch. i.-xii. (Edition by Baer, Tauchnitz.)

Students should also have a Hebrew Bible, and the Student's Hebrew Lexicon, E. C. Mitchell, (Asher and Co.)

FEE:—£2 12s. 6d.

#### II.

#### HEBREW COMPOSITION AND TRANSLATION, WITH SPECIAL REFERENCE TO SELECTED BOOKS.

(The selected books for 1905-6 will be announced in next year's Calendar.)

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## SECONDARY TEACHERS' DIPLOMA REGULATIONS FOR 1904-5.

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1. Candidates for the Secondary Teachers' Diploma shall have been admitted to a Degree in the University of Birmingham or in some other University of the United Kingdom, or shall have obtained such other qualifications as shall be approved by the Senate of the University as representing a standard equivalent to such degree.

2. The course for candidates for the Diploma shall extend over one academical year, and shall consist of regular attendance in a Secondary School approved by the University for the purpose (§3) and of attendance upon courses of lectures in the University (§7).

3. The attendance at the Secondary School shall be regular and continuous throughout the year; and it shall be arranged so as to include not less than three school mornings of the week. Each candidate shall, under the general supervision of the Head Master or Head Mistress, be specially attached for given periods to the work of a Master or Mistress, who shall make the candidate as thoroughly acquainted as possible with school methods, arrangements of curriculum, &c. Any work (including preparation for lessons) done by the candidate in connection with the school shall not extend beyond the ordinary hours of morning school. The preparation of lessons need not necessarily be done at the School.

4. A satisfactory report from the Head Master or Head Mistress shall be presented before the candidate can be admitted to the examination.

5. Each candidate will be required in the course of the year to give specimen lessons to a class of the

school under the joint supervision of the Head Master or Head Mistress and of the University authorities.

6. Until 1906, persons who have acted as regular teachers for at least two years in an approved Secondary School may be exempted from the requirements of § 3.

7. Candidates shall attend courses of lectures at the University on such subjects as the following:—Theory and Practice of Teaching, History of Educational Ideas, Psychology, School Hygiene, Voice Production, and Methods of Teaching in Specific Subjects. Such lectures shall average not less than five hours per week throughout the year. It will be arranged that the lectures be delivered at the University during the afternoon. The course of attendance at the University shall also, by arrangement with the City of Birmingham Education Committee, include observation of the methods and arrangements of elementary schools.

8. The examination shall take place, as a rule, during June, and shall consist both of written papers and of the delivery of practical lessons. The examination papers, while following the general lines of the courses of lectures which have been attended at the University, will not be confined to the actual subject-matter dealt with in them, but will include examination in a wider range of reading on educational subjects.

9. The list of successful candidates will be issued in alphabetical order, and no special honours will be assigned to any candidate. The Diploma will indicate at what school the candidate has attended under § 3.

The Head Masters or Head Mistresses of the following schools in the Midland district are willing to accept candidates for the Teachers' Diploma in their schools under the conditions of §§ 3, 4, 5, 6, and their schools have been approved by the University for these purposes:—

## FOR BOYS:

Birmingham, King Edward's High School.  
 „ King Edward's Grammar School, Aston.  
 „ „ „ Camp Hill.  
 „ „ „ Five Ways.  
 „ St. Philips' R.C. Grammar School.  
 Bromsgrove School.  
 Burton-on-Trent Grammar School.  
 Cheltenham College.  
 „ Dean Close School.  
 Coventry, King Henry VIII. Grammar School.  
 Denstone College.  
 Derby School.  
 Handsworth Grammar School.  
 Kidderminster, King Charles I. Grammar School.  
 Leicester, Wyggeston Boys' School.  
 Malvern College.  
 Newcastle-under-Lyme School.  
 Repton School.  
 Shrewsbury School.  
 Stourbridge, King Edward's Grammar School.  
 Sutton Coldfield Grammar School.  
 Walsall Grammar School.  
 Warwick, King's County School.  
 Wolverhampton, Tettenhall College.  
 Worcester, King's School.  
 „ Royal Grammar School.

## FOR GIRLS.

Birmingham, King Edward's Grammar School, Camp Hill.  
 „ King Edward's Grammar School, Aston.  
 Dudley High School for Girls.  
 Edgbaston High School for Girls.  
 Leicester, Wyggeston High School for Girls.  
 Shrewsbury High School for Girls.  
 Walsall, Queen Mary's High School for Girls.  
 Warwick, King's High School.

Candidates for the Secondary Teachers' Diploma shall pay a fee of five guineas per session, which shall include

the entrance fee. This fee will admit to the course on the History of Educational Ideas (Mr. Roscoe), to the course on Psychology (Professor Muirhead), and to a course on the General Principles of Teaching (Miss Joyce), and also to the following short courses of lectures, which have been specially arranged for Diploma candidates:—

- (a) Professor Fiedler on the Study and Teaching of a Modern Language.
- (b) Professor Heath on Contracted Methods in Arithmetic.
- (c) Professor Bostock Hill on Hygiene, with special reference to schools.
- (d) Professor Hughes on the Teaching of English.
- (e) Professor Sommenschcin on the Teaching of Latin.
- (f) Mr. Roscoe on the proper use of the Voice in Teaching with practical exercises.
- (g) Mr. R. Catterson-Smith, Head Master of the Birmingham Municipal School of Art, on the Principles on which the Teaching of Drawing in Secondary Schools should be based.

Acting Teachers in Secondary Schools will be admitted to all these special courses on payment of a Composition Fee of £1 11s. 6d per session, which shall include the Entrance Fee. The fee for any of these courses will be 5s. each per session, in addition to an Entrance Fee of 5s.

Sir Oliver Lodge will deliver a short course of Lectures on Teaching Methods, to which admission will be free.

Communications may be addressed to

Professor ALFRED HUGHES,

At the University.

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## INSPECTION OF SCHOOLS.

The University undertakes the Inspection of Schools under the following conditions :—

i. All the subjects taught in any school inspected must be subject to inspection, with the exception of religious instruction, which may be withdrawn should the authorities of the school desire it.

ii. The University shall decide as to the number of days over which the inspection shall extend, this question being determined by the number of pupils in the school. In a general way it may be said that for a school of about 100 pupils a two days' visit will suffice. In most cases the inspection will not extend beyond three days.

iii. The University shall require to have submitted to it by the authorities of the school when applying for inspection, a time table showing the subjects taught in the school. From this table the University shall decide whether one or more inspectors will be necessary.

iv. The Report of the Inspector shall be forwarded to the authorities of the school by the University. If this Report be subsequently published by the school no portion marked for publication shall be omitted.

v. The minimum charge for an inspection shall be £5. This sum will defray the cost of a one day's inspection by a single inspector, whose travelling expenses, and, if necessary, hotel expenses shall also be paid by the school authorities. Should a second day's inspection be necessary, or a second inspector be required, the fee shall be at the rate of £4 10s. per day per inspector, with travelling and hotel expenses.

vi. The Report shall deal with the educational aspect of the inspection mainly, but the Inspector shall examine the class rooms, playgrounds, workshops, gymnasium, latrines, and in the case of a boarding school, the dormitories. It will be understood that his report on these points will not be that of a sanitary expert, but of a person experienced in school management.

vii. With regard to the educational inspection, the duty of the Inspector shall be as follows:—(a) Before visiting the school, he shall satisfy himself by means of papers and documents submitted to him, as to the aims of the school, the needs of the neighbourhood in which it is situated, the class of pupils for which it is designed, and the class actually in attendance, the age of entering and leaving the school; in a word, to look at the institution, which he is to visit and report upon, from the point of view of its work and environment, and without any preconceived ideas as to what a school in the abstract ought to be doing. (b) From the same sources of information, he shall then ascertain the subjects which are being taught in the school, the method of division into classes, the arrangement of the time table and the text-books in use. (c) At the inspection itself his duty shall be to hear lessons given by the staff, and observe the work of the school as pursued every day, and not to examine the pupils, though he shall be at liberty to ask questions should he desire to do so, but he shall see the papers which have been worked in the various classes *after* they have been examined and marked, and he shall, if he regards it as necessary, be empowered to ask for the production of exercise books, registers, and other papers which may assist him in coming to a conclusion as to the nature of the work being done in the school, and the way in which it is being carried on. (d) After completing his inspection, the Inspector shall, if it is desired, meet the Governors of the School, and discuss with them the results of his observations. The University regards such a conference at the termination of an inspection as very desirable.

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## SCHOOL CERTIFICATES.

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The conditions under which the University conducts the Inspection of Secondary Schools will be found on page 329. In schools which come under this scheme the University is prepared to award Senior and Junior School Certificates under the following conditions :—

1. Senior School Certificates will be awarded to candidates who :

(*a*) have pursued an approved course of study for a continuous period of three years in one school, or of four years in two schools which are under the University's inspection; (*b*) have attained a standard of education fully equal to that of the University Matriculation Examination in an adequate range of subjects. The Certificate shall enumerate the subjects in which the necessary standard has been reached.

2. Holders of the Senior School Certificates will be exempted from the Matriculation Examination of the University in the cases where the subjects enumerated on the Certificate include all the subjects demanded by the Faculty which they propose to enter (see page 122).

3. Junior School Certificates will be awarded to candidates who :

(*a*) have pursued an approved course of study for a continuous period of three years in a school or schools which are under the University's inspection; (*b*) have attained such a standard as may reasonably be expected of a boy or girl of 15.

The Certificate shall enumerate the subjects in which the necessary standard has been reached.

4. The Certificates shall be awarded by the University upon the results of school examinations held by the teachers of the school in conjunction with the inspectors of the University; and the school record kept for each pupil throughout his period of attendance shall be available for inspection and consideration by the inspectors and examiners.

## DIPLOMA OF ART INSTRUCTOR.

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A Diploma of Art Instructor is awarded to candidates trained by the University of Birmingham in conjunction with the Municipal School of Art. Candidates for this Diploma are required to have satisfied the following conditions:—

(a) They shall have pursued for not less than four years, in the Birmingham School of Art, a course of study, and *either* shall have attained the grade of Art Teacher or Master, *or* shall have passed through a course of instruction approved by the Committee of the Birmingham School of Art.

(b) Before having attended this course of instruction they shall have passed either (1) the Matriculation Examination of the University of Birmingham, or (2) the Matriculation Examination of some other University, or (3) such other examination or examinations as may be approved of by the Senate of the University. Provided that, for the present and until the Senate shall otherwise decide, the examination alluded to in this section may be passed during or after the course of study laid down in clause (a).

(c) Subsequently to the passing of the examination mentioned in clause (b) they shall have attended in the University of Birmingham during one year, a course in English Literature, and at least two out of the following courses, each of which shall be of one year's duration. Such courses may be taken in separate years or in two years, but not, unless by special permission of the Senate, in one year:—

- (1) Modern History and Archæology.
- (2) Ancient History and Archæology.
- (3) French Language and Literature.
- (4) German Language and Literature.

- (5) Italian Language and Literature.
- (6) Latin.
- (7) Greek.
- (8) External forms of Plants and Animals.
- (9) Earth Structure and Landscape.

(d) They shall have passed examinations in the subject of each course, which examinations may be passed separately at the termination of each course or otherwise.

(e) They shall have attended a course of Lectures on the Art of Teaching delivered in the University.

(f) Each candidate shall have acted for at least twelve months as an Assistant Teacher or Student Teacher under the supervision of one of the Teachers of the Birmingham School of Art, or of some other approved teacher, and shall have received, from such teacher, a certificate of competency to teach.

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## FACULTY OF COMMERCE.

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The instruction provided by the Faculty of Commerce furnishes a systematic training, extending over a period of three years. It consists of courses of study of two kinds. Some deal with subjects which are primarily of concern to the future man of business, but which are nevertheless capable of being made the instruments of a true education. Others deal with subjects which have long been recognised as elements of liberal culture, and yet are peculiarly valuable for those who are to be engaged in commerce and manufacture. While certain parts of the curriculum are believed to be serviceable for all classes of business men, and are prescribed for all students in the Faculty, other parts are so arranged as to allow a large freedom of choice, in accordance with the prospects, interests and aptitudes of the individual students.

Students who have been matriculated in the University, and have acquitted themselves with credit in the requisite class-work and examinations, will be admitted to the degree of Bachelor of Commerce. Students may matriculate on passing the Matriculation Examination of the University, or on producing evidence that they have passed one of the examinations which the University accepts in lieu thereof. A schedule of the exempting examinations is given in the Regulations for Matriculation.

The requirements in the several subjects of the Matriculation Examination are the same for all Faculties, and will be found in the Regulations for Matriculation. The number of subjects is also the same ; but the list from which selection can be made by students who propose to matriculate in the Faculty of Commerce is somewhat more limited than in the case of the other Faculties.

Every candidate in the Faculty of Commerce must pass in five subjects before he is allowed the next University Examination, viz. :—

- (1) English Language, Literature and History.
- (2) and (3) Any two Languages out of the following :  
—French, German, Italian, Spanish, Latin.

[It is very desirable that students should enter upon their work in the Faculty of Commerce with an elementary knowledge of *two* modern foreign languages; but, for the present, Latin and *one* modern foreign language will be accepted for Matriculation.

Other modern languages, such as Arabic, Japanese, or Hindustani, may be accepted in suitable cases. Candidates who propose to offer such other languages at the June examination are requested to communicate with the Registrar before April 20th; if at the September examination, before June 15th.]

- (4) Mathematics.
- (5) One Science subject chosen from the following:—  
Mechanics, Chemistry, Physiography.

But although students will not be allowed the next University Examination until they have passed in five subjects, they may be matriculated in the Faculty of Commerce on passing the Matriculation Examination in (1) English, (2) Mathematics, (3) one of the prescribed Languages, and (4) *either* a Science *or* another Language. The deficiency must subsequently be repaired by passing in the fifth subject.

Attention is called to the fact that there are other subjects, besides these examined upon at Matriculation, which may advantageously be studied before entering the University by boys looking forward to business pursuits. Thus skill in Freehand and Geometrical Drawing will in many cases be found of practical advantage in after life; and a knowledge of Shorthand will be found especially useful by boys whose careers depend entirely on their own ability and exertions.

All students who propose to enter upon the curriculum leading to the degree of Bachelor of Commerce, are required to call upon the Dean of the Faculty of Commerce at the University, on the morning of any day between September 26th and September 30th, or on October 3rd, between 10 a.m. and 1 p.m., to inform him as to their previous training, and to consult with him as to their choice of studies. Lectures will begin on Tuesday, October 4th. Students unavoidably prevented from meeting him at those times are requested to communicate with him by letter, on, or as soon as possible after, September 26th, to arrange an interview.

It is unwise for boys who desire a higher commercial education to leave school before they can pass an examination qualifying for Matriculation. And even after passing such examination, students may be too immature to benefit by a training which calls for the constant exercise of judgment. Accordingly, although no age limit will be set, and every case will be determined upon its merits, the Faculty of Commerce reserves the right of postponing the admission of students who appear insufficiently mature in mind and character to benefit by the instruction. Such students may be advised to spend a preliminary year in a workshop or counting-house. The same plan may properly be recommended in some cases to students who look forward to entering businesses in which early practical experience is desirable.

#### CURRICULUM FOR THE DEGREE OF B. COM.

Candidates for this degree are required to have attended the following courses of study, and to have passed the University Examinations thereon at the end of each of the three years. There will be a *vivâ voce* examination in foreign languages in each year; and also in such other subjects as the Examiners may determine. Candidates may offer themselves for the whole or any part of the Examination in any year. The names of those who pass in each subject will be arranged in three classes, alphabeti-



cally in each; and the subjects taken by each student will be recorded on the degree *testamur*, with the class obtained in each. Only matriculated students will be admitted to University Examinations (in which External Examiners co-operate with the University staff). The class examinations, to which non-matriculated students will be admitted, will be conducted by the University staff alone, and the certificates will contain no distinction of classes. The scope of the several courses will be learnt from the syllabuses which follow the curriculum; and (in the case of courses in Modern Languages, History and Science) from those in the announcements of the Faculties of Arts and Science.

## FIRST YEAR.

1. Commerce I.
- 2, 3. Any two of the following modern Languages : French, German, Spanish, Italian.

4. Accounting I.

5. *Two* of the following :

- (a) Geography in relation to Commerce.
- (b) Modern European History.
- (c) Elementary Psychology and Logic.
- \* (d) Engineering.
- \* (e) Metallurgy.
- \* (f) Mining.

Or *one* of the following :

- (g) Logic.
- (h) Mathematics.
- \*\* (i) Physics.
- \*\* (j) Chemistry.
- \*\* (k) Engineering.
- \*\* (l) Metallurgy.
- \*\* (m) Mining.

6. The Commerce Seminar.

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\* A selected course of two hours a week.

\*\* A selected course of four hours a week.

*Languages.*—The examination at the end of the first year will be the same as that for the Intermediate Examination in Arts. Students, therefore, who are unable, from want of preparation, to benefit by the first University course, will begin with the preliminary course, and will be expected to give a larger proportion of their attention to the language in which they are backward in order to make up the deficiency as rapidly as possible.

*Geography.*—See the syllabuses of the Faculty of Science.

*Modern European History.*—See the syllabuses of the Faculty of Arts.

*Elementary Psychology and Logic.*—See the syllabuses of the courses on Education.

*Pure and Applied Sciences.*—The courses to be taken in these subjects by those students in the Faculty of Commerce who select them will be determined after consultation with the Dean of the Faculty of Commerce, upon consideration of the needs and purposes of the individual students. The requirement, for the purpose of this curriculum, in the alternatives marked \* in the above list, will not exceed two hours of lectures a week; in the case of those marked \*\* will not exceed four hours of lectures; or, in both cases, their equivalent in workshop or laboratory practice. Two laboratory or workshop hours will be reckoned equivalent to one lecture hour. When more lectures are taken than the requirement, an addition will be made to the Composition Fee. In most of the Departments concerned there are already courses of two and four hours respectively, or their equivalents. In Departments where they are not, in any year, already definitely provided, they can only be arranged with the sanction of the Professor in charge of the Department, on the recommendation of the Dean of the Faculty of Commerce. It is therefore desirable that students who propose to take courses in Pure or Applied Science should consult the Dean a few days before the opening of the Session.

*Logic.*—See the syllabuses of the Faculty of Arts.

*Mathematics*.—Either Pure Mathematics, Course I., or Applied Mathematics, Course I.

For Commerce, Accounting, and the Commerce Seminar, see the syllabuses below.

#### SECOND YEAR.

1. Commerce II.
- 2, 3. Languages, as in the First Year.
4. Accounting II.
5. Economic Analysis.
6. *Either* Outlines of French History *or* Outlines of German History.

7. *Two* of the following :

- (a) British Institutions.
- (b) Economics of Transport.
- (c) Geography.
- (d) Moral Philosophy.
- \* (e) Engineering.
- \* (f) Metallurgy.
- \* (g) Mining.

Or *one* of the following :

- (h) Mathematics.
- \*\* (i) Geology.
- \*\* (j) Physics.
- \*\* (k) Chemistry.
- \*\* (l) Engineering.
- \*\* (m) Metallurgy.
- \*\* (n) Mining.

8. The Commerce Seminar.

*Languages*.—Students can in this year select only those languages on which they have passed the examinations of the previous year, or in which they can already show, to the satisfaction of the Professor of the language, the same

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\*  
\*\* } See notes and regulations under First Year.

proficiency as is demanded at the First University Examination. The work in each language will include Conversation, Dictation, Translation at Sight and Composition. The books read will consist, in the earlier part of the session, of literary masterpieces, in the later part of the session, of typical examples of foreign commercial and industrial literature. The object of the course is to enable the student in future to keep abreast of commercial and industrial changes in other countries by consulting current foreign publications.

*History of Germany.*—See the syllabus of the German department.

*British Institutions.*—See the syllabuses of the Faculty of Arts.

*Geography.*—See the syllabuses of the Faculty of Science.

*Moral Philosophy.*—See the syllabuses of the Faculty of Arts.

*Pure and Applied Sciences.*—See regulations under the First Year.

*Mathematics.*—Either Pure Mathematics, Course II. or Applied Mathematics, Courses I. or II.

For Commerce, Accounting, Economic Analysis, Economics of Transport, and the Commerce Seminar, see the syllabuses below.

### THIRD YEAR.

1. Commerce III.
- 2, 3. Languages, as in the previous years.
4. Accounting III.
5. Commercial Law.
6. Methods of Statistics.
7. *Either* French Institutions *or* German Institutions.
8. *Two* of the following:—
  - (a) Technique of Trade, including Banking and Exchange.

- (b) Public Finance.
- \* (c) Electro-Technics.
- \* (d) Engineering.
- \* (e) Economic Geology.
- \* (f) Metallurgy.
- \* (g) Mining.
- \* (h) Brewing.
- (i) Hygiene and Public Health.

Or *one* of the following:—

- \*\* (j) Chemistry.
- \*\* (k) Electro-Technics.
- \*\* (l) Engineering.
- \*\* (m) Metallurgy.
- \*\* (n) Mining.
- \*\* (o) Brewing.

#### 9. The Commerce Seminar.

Students looking forward to a specifically *mercantile* life are recommended to select the course numbered 8 (a). Those looking forward to a *manufacturing* career may be wise in making a selection among the courses 8 (c) to 8 (o).

*Languages.*—The work in this year will deal with Commercial Correspondence ; though in exceptional cases, with the consent of the Dean of the Faculty, the study of the literature of some particular branch of business in the languages selected (*e.g.* of Engineering, Mining, Railway Administration, Municipal Administration) may be substituted. Students will be allowed to select the course in Commercial Correspondence only in those languages in which they have reached the proficiency demanded at the First University Examination.

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\* } See notes and regulations under First Year.  
 \*\* }

*Pure and Applied Sciences.*—See regulations under First Year.

The purpose in this, as in the previous years, is to give the future man of business who so desires such a knowledge of the processes of a particular manufacture as may be useful to one whose chief interest nevertheless is on the commercial side.

*German Institutions.*—See the syllabus of the department of German.

*Hygiene and Public Health.*—See the syllabuses of the Faculty of Medicine.

For Commerce, Accounting, Commercial Law, Technique of Trade, Methods of Statistics, and the Commerce Seminar, see the syllabuses below.

#### FEEs :

The Composition Fee for the whole curriculum will be £21 for the first year, and £24 3s. in the second and third years. This includes the Membership Fee of £1 1s.

|                                                                                                                                         | £ | s. | d. |
|-----------------------------------------------------------------------------------------------------------------------------------------|---|----|----|
| Matriculation ... ..                                                                                                                    | 2 | 0  | 0  |
| Matriculation by virtue of any of<br>the examinations accepted in lieu<br>of the Matriculation Examination<br>of this University ... .. | 1 | 0  | 0  |
| First Examination ... ..                                                                                                                | 2 | 0  | 0  |
| Second Examination ... ..                                                                                                               | 2 | 0  | 0  |
| Third Examination ... ..                                                                                                                | 2 | 0  | 0  |
| Admission to B.Com. Degree ...                                                                                                          | 2 | 0  | 0  |

Each of the classes in the Faculty of Commerce is open to all persons who are capable of taking advantage of the instruction offered, whether they have matriculated or not ; and pass-certificates will be granted to non-matriculated students at the end of each session on the results of the class examinations.

The conditions of admission in the case of non-matriculated students are identical with those for similar students in the Faculties of Science and Arts. They include Registration in the Secretary's office, the payment of a variable Membership Fee (*e.g.*, for a single course running through the whole session, 10s. 6d.), and the payment of Fees for the particular courses selected (given below with the several syllabuses).

But although only students who have been matriculated can become candidates for the degree of Bachelor of Commerce, the Senate has power to recognise the attendance of non-matriculated students on courses of study as part of the qualification for a degree.

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## SYLLABUSES OF COURSES.

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### COMMERCE AND PUBLIC FINANCE.

*Professor:* W. J. ASHLEY, M.Com.; M.A. (Oxon.), late  
Fellow of Lincoln College, Oxford.

*Lecturer:* A. W. KIRKALDY, M.A., B.Litt. (Oxon).

*Special Lecturer on the Technique of Trade:* A. W.  
KIRKALDY, M.A.

### COMMERCE.

#### COURSES I. AND II.

I.—FIRST YEAR: The British Empire, with particular regard to existing circumstances in the colonies and dependencies.

Tuesdays and Thursdays, at 10.30.

FEE:—£4 4s.

II.—SECOND YEAR: The United States, Germany, Russia, France, other European countries, South America, &c.

Mondays and Fridays, at 2.30.

FEE:—£4 4s.

These courses will set forth the modern development and the present structure and position of industry and trade in the leading countries of the world. This will involve a consideration of geographical position and natural resources on the one side, and, on the other side, of the supply and organisation of capital and labour, and of the state of the mechanical arts; and the courses will lead up to a critical account of international commercial relations.

Commercial History and Commercial Geography will be largely introduced; but they will be treated in relation to one another, and in close connection with the discussion of the problems of the present.



## COURSE III.

**THIRD YEAR:** Business Policy, in its main principles, as indicated by industrial and commercial experience.

Two hours a week, to be arranged.

**FEE:**—£5 5s.

The course will deal with such topics as the following: The Location and Laying-out of Works and Offices; Capitalization; Production on Large and Small Scale; Differentiation and Consolidation of Manufactures; Combinations of Manufacturers or Merchants; Limited Companies, Private and Public,—their Advantages and Disadvantages; Factoring and Manufacturing; Machinery—its Financial and Industrial Consequences; Works Management; Relations of Employers and Employed, Methods of Remuneration, Hours of Labour; Choice of Markets; Market Fluctuation and their Interpretation; Advertisement; Negotiation; Relation of Selling Price to Cost, Fixed Charges; Methods of Sale and Purchase; Credit; Goodwill; and Trade Cycles.

**ECONOMIC ANALYSIS.**

## SECOND YEAR.

Thursdays, at 2.30.

**FEE:**—£1 11s. 6d.

This course will take a rapid survey of the whole of the wealth-producing and wealth-distributing activity of society. It will seek to disentangle the larger forces at work, to direct attention to the complex relations of cause and effect, and to indicate the general causes and criteria of national prosperity. It will deal systematically with most of the general topics usually treated of in the text books of Political Economy, including the functions of money and credit. It will thus supplement the courses on Commerce by (1) emphasizing the general considerations only incidentally touched upon therein, and (2) connecting commerce with other sides of national life.

**ECONOMICS OF TRANSPORT.****SECOND YEAR.**

One hour a week, to be arranged.

FEE :—£1 11s. 6d.

The course will give an outline survey of the various means of transportation, with a more particular treatment of railways—their development and organization. The forces influencing railway rates will be considered, and the attempts of various governments to control or manage railways will be explained and criticised. Some attention will also be given to ocean freights; as well as to canals and other means of internal communication.

**PUBLIC FINANCE.****THIRD YEAR.**

Wednesdays at 12.30.

FEE :—£1 11s. 6d.

This course will treat of Public Expenditure, Public Revenue and Public Credit, as illustrated especially in the national, county and municipal experience of Great Britain. It will discuss the principles and methods of Taxation, and the methods of contracting and extinguishing Debt; and it will include a comparison with foreign systems of raising revenue.

Students will examine the last British Budget, and will read a number of the more important Budget speeches of recent decades.

The course is recommended to students who propose to enter, or are already engaged in, municipal or banking service.

**TECHNIQUE OF TRADE.**

(INCLUDING BANKING AND EXCHANGE.)

**THIRD YEAR.**

Two hours a week, to be arranged.

FEE :—£4 4s.

This course will deal with the organization of the great staple markets and commercial institutions at home and abroad, the chief technical terms, and the most important mercantile documents. It will include an account of the English Banking System as compared with those of the United States and Germany; and it will explain the mechanism of the Money Market and of Foreign Exchange.

### **STATISTICS.**

#### **THIRD YEAR.**

One hour a week, during two terms.

FEE:—£1 1s.

This course is intended to serve as an exposition of the statistical methods most commonly employed rather than as a description of mere results. The chief governmental statistics of Great Britain, dealing with trade and manufactures, will be examined; and an attempt will be made to indicate, after a consideration of the mechanism for securing information employed in each case, the extent to which the results are of value, and the way in which they might be rendered more serviceable.

### **THE COMMERCE SEMINAR.**

THROUGHOUT the THREE YEARS; Saturdays, 10 to 12.

FEE:—£4 4s.

The purpose of the Seminar is to train students in independent investigation and reasoning; and the attendance of all candidates for the degree of B. Com., is compulsory. A subject is assigned some weeks beforehand to each member of the Seminar. He consults the literature of the subject and makes such inquiries as the Professor may suggest; and then prepares a paper, which is read in the Seminar, and there discussed and criticized. Incidentally an effort is made to give the members of the Seminar some practice in the art of clear and vigorous exposition and to accustom them to the preparation of terse and business-like reports.

**ACCOUNTING.**

*Professor:* LAWRENCE R. DICKSEE, M.Com.; F.C.A.

**COURSE I. FIRST YEAR.**

Tuesdays, at 2.30.

FEE:—£1 11s. 6d.

Instruction in simple systems of book-keeping, explaining the meaning of Debit and Credit and the principle of Double Entry, and wherein it differs from Single Entry. The course will comprise a description of all usual subsidiary books, leading up to the account books proper. Such instruction will include an explanation of the Trial Balance, the Balance Sheet and Trade Account, and the meaning of "Capital" and "Revenue," and other terms used in book-keeping and accounts.

**COURSE I. A.**

(Not given in 1904-5).

Wednesday, 9.30 to 10.30, during the Winter Term.

The Professor of Mathematics will give a short course of lectures on the Theory of Compound Interest, Annuities and Sinking Funds, together with an explanation of the construction and use of Interest, Annuity, Life and Sinking Fund Tables. Opportunity will also be taken in connection with this course to give some training in rapid arithmetical methods. The course is recommended for Accountants, Surveyors and Actuaries, but is not obligatory on other students in the Faculty of Commerce.

**COURSE II. SECOND YEAR.**

Section A, Tuesdays, at 5.30; Section B (Revision), Tuesdays, at 4.30.

FEE:—For each Section, £1 11s. 6d.

This course will begin with a further explanation of the technique of Accounting. This will include:—(1)

A description of the various forms of books suitable for different requirements, with an explanation of the sectional balancing of books. (2) An outline of the forms of Books and Accounts adapted to different classes of undertakings such as Banks, Public Authorities, Gas Works, Shipping Companies, Railways, Tramways, Collieries, Breweries, Manufacturers, Merchants, etc. (3) A description of the books and forms required in connection with the Share Capital, Mortgages, and Debentures of Joint Stock Companies, and examples of Partnership Accounts.

This will be followed by an explanation of

- (1) Executorship Accounts, including Probate and Residuary Accounts;
- (2) Bankruptcy, Liquidation and Receivership Accounts;
- (3) The preparation of Accounts for Income Tax Returns and Appeals.

To this will be added a consideration of the checks and arrangements necessary to ensure accuracy in account books and the verification of accounts; and a description will be given of Office and Works staff and organization so far as is necessary to make the methods of book-keeping properly intelligible.

Students may be exempted, with the consent of the Dean of the Faculty, from such parts of this course as are too special or technical for their individual requirements; and a choice of questions will be allowed in the examination.

After this study of the mechanism of accounting, the work of the course will be directed to its higher purpose—to give students a grasp of principles which shall enable them to comprehend the significance of accounts, and understand the process by which the earnings and values of industrial properties are computed. This will include an analysis of Receipts, Disbursements, Assets and

Liabilities, in various kinds of industry, and a consideration of Depreciation and Appreciation of Stock and Equipment, Interest, Sinking Funds, Reserve Fund, Reserves, Gross and Net Profit, Working Capital, and Goodwill, with an elementary treatment of Costing and Cost Accounts. A number of published balance sheets will be studied, and students will be set exercises in their interpretation.

### COURSE III. THIRD YEAR.

FEE :—£4 4s.

The course will begin with a discussion of Statistical Accounts and of Head Office and Branch Accounts, and a consideration of systems for centralizing the book-keeping of branches.

But it will be mainly devoted to a consideration of Departmental Book-keeping and Accounts, Stock and Stores Accounts, and advanced Costing and Cost Accounts, suitable for various undertakings.

Attention will be called to the several possible systems of Costing, and the merit and weaknesses of each; the several circumstances to be borne in mind in various typical businesses when constructing a system; and the necessary limitations of cost accounts.

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### COMMERCIAL LAW.

*Lecturer* : FRANK TILLYARD, M.A., Barrister-at-Law.

Third Year.—Mondays and Thursdays, at 12.30.

FEE :—£2 12s. 6d.

The course will begin with Money and substitutes for money, and will deal with Cash, Legal Tender, Bank Notes, Cheques and Bills of Exchange.

Then legal and mercantile persons will be considered. This part will include sole traders, the use of trade names, partnerships, corporations and incorporated trading companies (private and public), and also factors, brokers and other agents.

The law of contracts will be studied with special reference to the sale of goods, contracts of transport and insurance, and to the legal principles governing good faith and fraud.

Lending and borrowing on security will be dealt with at some length, and this part will cover guarantees, mortgages and debentures, and deposits of bills of lading, warrants and the like.

Bankruptcy and winding up will be treated, and various topics arising out of the relation of master and workman such as the law as to combinations, factory legislation, accidents, &c.

Patent Law will be studied, and, if time permits, some of the simpler legal incidents of foreign trade in peace and war.

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### SCHOLARSHIPS.

#### THE SUNDERLAND SCHOLARSHIP.

A Scholarship of the value of £50 per annum, tenable for three years on the annual recommendation of the Faculty, will be awarded triennially, if a suitable candidate presents himself. The first election will be made in September, 1904.

#### THE DUDLEY SCHOLARSHIP.

A Scholarship of the value of £30 per annum, given by members of the Dudley and District Chamber of Commerce, will be awarded to candidates from that district who are qualified to enter the Faculty of Commerce in the University, in October, 1904.

#### THE WALSALL SCHOLARSHIP.

A Scholarship of the value of £25 per annum, given by members of the Walsall Chamber of Commerce, will be awarded to candidates from that district on similar conditions.

For other Scholarships tenable in the Faculty of Commerce, see pages 138, 139, 145, 146.

Further information may be obtained from the Secretary, the University.

## Vacation Reading. FACULTY OF SCIENCE.

### MATHEMATICS.

C. L. Dodgson, Euclid and his Modern Rivals.  
Pillow Problems.

H. H. Turner, Modern Astronomy.

W. W. R. Ball, Mathematical Recreations and  
Problems.

A Short History of Mathematics.

### PHYSICS.

Students about to enter Course I. may read :—

Tyndall's Sound.

S. P. Thompson's Light, Visible and Invisible.

Those about to enter Courses II. and III. may read  
some of the following :—

Perry's Spinning Tops.

Ball's Time and Tide.

Newcomb's Astronomy.

Boys' Soap Bubbles.

Rotch's Sounding the Ocean of Air.

Roscoe's Spectrum Analysis.

Clarke's System of the Stars.

Thomson's Electric Discharge in Gases.

Or students may prefer to read some part of Text  
Books suitable for the different courses.

#### *Text Books for Course I.*

Larden's School Course in Heat, or Wright's Heat.

Glazebrook's Light.

Catchpool's Text Book of Sound.

Poyser's Advanced Magnetism and Electricity.

Or for the whole course :—

Deschanel's Natural Philosophy.

#### *Text Books for Course II.*

Worthington's Dynamics of Rotation.

Poynting and Thomson's Properties of Matter.



Poynting and Thomson's Sound.  
 Poynting and Thomson's Heat.  
 Edser's Light.  
 Foster and Porter's Electricity and Magnetism.

## CHEMISTRY.

A. Students intending to enter for the First Year's Course may profitably read :—

- (1) Newth's Inorganic Chemistry.
- (2) Dobbin and Walker's Chemical Theory for Beginners.

B. Students intending to enter for the Second Year's Course may profitably read :—

- (1) Ostwald's Foundations of Analytical Chemistry.
- (2) Ostwald's Outlines of Inorganic Chemistry.
- (3) Walker's Introduction to Physical Chemistry.
- (4) Wade's Organic Chemistry, especially the introductory chapters and those relating to the fatty compounds.

C. Students intending to enter for the Third Year's Course may profitably read :—

- (1) Wade's Organic Chemistry (revision).
- (2) Holleman's Organic Chemistry.
- (3) Walker's Introduction to Physical Chemistry (revision).
- (4) Van t'Hoff's Lectures on Theoretical and Physical Chemistry.
- (5) Lachman's Spirit of Organic Chemistry.
- (6) Ernst v. Meyer's History of Chemistry.
- (7) Findlay's Phase Rule.
- (8) Le Blanc's Electro-chemistry.

## ZOOLOGY.

## FIRST YEAR.

The Study of Animal Life, by J. Arthur Thompson (John Murray).

The Colours of Animals, by E. B. Poulton (International Science Series).

Darwinism, by A. R. Wallace (Macmillan & Co.)

Lectures on the Darwinian Theory, by A. Milnes Marshall (David Nutt).

Outlines of Zoology, by J. Arthur Thompson (Young J. Pentland).

Text-book of Zoology, by T. J. Parker and W. A. Haswell (Macmillan & Co.).

## SECOND YEAR.

The Origin of Species, by Charles Darwin (John Murray).

Descent of Man, by Charles Darwin (John Murray).

Island Life, by A. R. Wallace (Macmillan & Co.).

The Malay Archipelago, by A. R. Wallace (Macmillan & Co.).

Notes by a Naturalist on H.M.S. Challenger, by H. N. Moseley (John Murray).

Animal Life, by Karl Semper (International Science Series).

The various volumes of The Cambridge Natural History (Macmillan & Co.).

Amphioxus and the Ancestry of Vertebrates, by Arthur Willey (Macmillan & Co.).

The Cell in Development and Inheritance, by E. B. Wilson (Macmillan & Co.).

Treatise on Zoology, by E. Ray Lankester, parts ii. and iii. (A. & C. Black).

An Introduction to the Study of Mammals, living and extinct, by W. H. Flower and R. Lydekker (A. & C. Black).

Vertebrate Embryology, by A. Milnes Marshall (Smith, Elder & Co.).

Vertebrate Palæontology, by A. Smith Woodward (Cambridge University Press).

Geographical Distribution of Animals, two vols., by A. R. Wallace (Macmillan & Co.).

The Professor will be glad to advise students in their choice of books.

## BOTANY.

- (1) *After Matriculation and before entering University.*

FIELD BOTANY, with the aid of Groom's Elementary Botany (Bell & Sons), or Henslow's How to Study Wild Flowers (Religious Tract Society).

Lubbock's "Flowers, Fruits and Leaves" (Macmillan's "Nature" Series).

- (2) *At end of First University Year.*

FIELD BOTANY, using Hooker's "Students' Flora of the British Isles" (Macmillan's). As a convenient book for the pocket, Hayward's "Botanists' Pocket Book" (Bell & Sons).

Lubbock's "British Wild Flowers in relation to Insects" (Macmillan's "Nature" Series). Coulter's "Plant Relations" (Appleton, New York). "Darwinism," by A. R. Wallace (Macmillan). "The Naturalist in Nicaragua," by Thos. Belt (Bumpus).

- (3) *At end of Second University Year*, special suggestions will be made.

The Professor's holiday advice to students in general is—live so far as can be in the open air, and study Nature face to face, finding out her methods first hand.

## GEOLOGY.

*Preliminary Reading.*

Students desirous of preparing themselves for entering the Classes in the Geological Department should read any of the ordinary text-books upon Physiography and Physical Geography, such as Page and Lapworth's *Elementary Physical Geography* (Blackwood), Philip's *Class Book of Physical Geography*, or Hinman's *Eclectic Physical Geography*.

If these have been mastered, the pupil is recommended to continue his reading in the subject in such works as Geikie's *Scenery and Geology of Scotland*, or Davis' *Physical Geography* (Ginn).

The deeper the student's acquaintance with the facts and principles of Physical Geography, the more rapid and certain will be his future progress in the science of Geology.

*Long Vacation Reading.*

The nature of the Long Vacation Reading will depend to a certain extent upon the special branch of the subject which the student is taking up for his degree. All students, however, should read Lapworth's *Intermediate Geology* (Blackwood), Nicholson's *Ancient Life-History of the Earth*, Green's *Physical Geology*, or the Dynamic portion of Geikie's *Text Book of Geology*, Jukes-Browne's *Building of the British Isles*, or Marr's *Scientific Study of Scenery*.

Those who are desirous of reading outside their ordinary work may study Lyell's *Principles of Geology*, Kayser and Lake's *Comparative Geology*, or James Geikie's *Great Ice Age*.

The text books studied during the term are not included in the above.

## FACULTY OF ARTS.

The following books are suggested to students about to commence their first, second, or third year's course for the B.A. Degree :—

### LATIN.

#### FIRST YEAR.

The *Aeneid* of Vergil in the verse translation of Rhoades (Longman).

Wells, *History of Rome* (Methuen).

Fausset, *The Student's Cicero* (Swan Sonnenschein and Co.).

#### SECOND YEAR.

Select Odes of Horace, translated in verse by De Vere (W. Scott's Canterbury Poets).

Catullus, translated in verse by Martin (Blackwood).  
Mackail, *Latin Literature* (Murray).

## THIRD YEAR.

Horace's Satires and Epistles, translated in verse by  
Conington (Bell).

Sellar's Roman Poets of the Augustan Age: Vergil,  
Horace, and the Elegiac Poets (Clarendon  
Press).

Myers, *Essay on Vergil* ("Classical Essays,"  
Macmillan).

## GREEK.

## FIRST YEAR.

The *Odyssey* of Homer, translated in prose by  
Butcher and Lang (Macmillan).

Plato, *Apology*, translated by Jowett (Clarendon  
Press), or by Cary (Routledge).

## SECOND YEAR.

Aeschylus, *Agamemnon*, translated by Robert  
Browning (Smith, Elder & Co.).

Balaustion's Adventure, by Robert Browning (Smith,  
Elder & Co.).

*The Student's Manual of Greek Tragedy*, edited by  
Verrall (Swan Sonnenschein & Co.).

The Greek view of life, by G. L. Dickinson  
(Methuen).

## THIRD YEAR.

Plato, *Crito* and *Phædo*, translated by Jowett  
(Clarendon Press), or by Cary (Routledge).

Theocritus, translated by Hallard (Longman).

## ENGLISH.

## FIRST YEAR.

One or more of the following works:—

Dowden's *Shakspeare: His Mind and Art*.

Bagshot's *English Constitution*.

Russell Lowell's *Essays on Chaucer and Spenser*.  
(*My Study Windows*, Camelot Series.)

Mandeville's *Travels*.  
 Malory's *Mort D'Arthur* (Selections).  
 Kingsley's *Westward Ho!*

#### SECOND YEAR.

One or more of the following works :—

Bacon's *Advancement of Learning*.  
 Russell Lowell's *Essays on Dryden and Pope*.  
 Pepys' *Diary* (Selections).  
 Hakluyt's *Voyages* (Selections).  
 Addison's *Sir Roger de Coverley Papers*.  
 Arbuthnot's *John Bull*.  
 Defoe's *Journal of the Plague*.  
 Thackeray's *Esmond*

#### THIRD YEAR.

One or more of the following works :—

Walpole's *Letters*, and *Castle of Otranto*.  
 Myers' *Wordsworth* (English Men of Letters Series).  
 Richardson's *Pamela*.  
 Thackeray's *English Humourists* and *The Four Georges*.  
 Scott's *Heart of Midlothian*.  
 Carlyle's *Sartor Resartus*.

### FRENCH.

#### FIRST YEAR.

French Life in Town and Country (Newnes and Co.)  
 Vie de Collège en France, par Laurie (Hetzl, Paris).  
 Dialogues des Morts, par Fénelon (Delagrave, Paris).

#### SECOND YEAR.

Pages choisies de Balzac (G. Lawson), (Colin & Cie, Paris).  
 Pellissier, Le mouvement littéraire au XIX<sup>e</sup> siècle (Hachette, Paris).  
 Taine, Voyage aux Pyrénées (Hachette, Paris).  
 Robiquet, Histoire municipale de Paris. Scènes et récits historiques (Hachette, Paris).  
 Mézières, La Société française (Perrin, Paris).

Texte, Etudes de littérature européenne (Colin, Paris).

### THIRD YEAR.

*Stapfer*, Molière et Shakspeare (Hachette, Paris).

*Jusserand*, Les Anglais au Moyen-Age (Hachette, Paris).

*Lemaistre*, L'Institut de France et nos grands établissements scientifiques (Hachette, Paris).

*Brunetière*, L'évolution des genres dans la littérature (Hachette, Paris).

*Pellissier*, Etudes de littérature contemporaine (Perrin, Paris).

## GERMAN.

### FIRST YEAR.

W. H. Dawson, German Life in Town and Country (George Newnes & Co.).

H. Seidel, Weihnachten bei Leberecht Hühnchen, edited by Morich (Rivington).

### SECOND YEAR.

K. Francke, Social Forces in German Literature (Bell & Sons).

S. Whitman, Imperial Germany (Trübner and Co.)

Behaghel-Trechmann, A Short Historical Grammar of the German Language (Macmillan and Co.)

Goethe's Götz von Berlichingen, translated by Sir Walter Scott (Bohn's Library).

Schiller's Wallenstein, translated by Coleridge (Bohn's Library).

Balladen und Romanzen, The Golden Treasury of the Best German Ballads and Romances (Macmillan & Co.).

Scheffel's Ekkehard, edited by H. Hager (Whittaker and Co.).

## THIRD YEAR.

W. Scherer, Geschichte der deutschen Litteratur  
(Berlin, Weidmann).

[The same translated by Mrs. Conybeare, Oxford  
University Press.]

F. Paulsen, die deutschen Universitäten (Berlin).

[The same translated by E. D. Perry, New York.  
Macmillan and Co.]

O. Weise, Unsere Muttersprache (Leipzig, Teubner).

G. H. Lewes, The Life and Works of Goethe.

Thomas Carlyle, The Life of Friedrich Schiller.

J. R. Seeley, Goethe Reviewed after sixty years  
(London, Seeley and Co.).

Deutsche Lyrik. The Golden Treasury of the Best  
German Lyrical Poems (Macmillan and Co.).

Goethe's Faust in the original, and Sir Theodore  
Martin's Translation.

Gottfried Keller, Die Leute von Seldwyla, Erzäh-  
lungen (Berlin, W. Hertz).

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## FACULTY OF MEDICINE.

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THE SESSION will be opened on Monday, the 3rd of October, 1904.

There are two Sessions in the academical year, and students may commence their studies at the beginning of either, but are recommended to enter in October.

THE WINTER SESSION begins on the 3rd of October and terminates on the 1st of April.

THE SUMMER SESSION commences on the 26th of April and terminates on the 8th of July.

The Dean's Office is open daily, and all information may be obtained there. The Dean attends during Term on Monday, Wednesday, and Friday, from 2.30 to 3. During vacations information may be obtained by letter.

All Fees are payable in advance (*i.e.* at the beginning of the Session on account of which they are due), at the Secretary's Office in the University. Cheques should be drawn in favour of Mr. Geo. H. Morley.

*All the Courses, Scholarships and Degrees in the University are open to students of both sexes.*

Students, on entrance, are required to produce a testimonial or such other evidence of good character as shall be satisfactory to the Dean, and to sign an engagement that they will conform to such regulations as have been or may be made for the maintenance of order in the University.

Students intending to take lodgings in Birmingham or the vicinity are requested to place themselves in communication with the Secretary.

## REGULATIONS FOR DEGREES IN MEDICINE AND SURGERY.

The University confers the degrees of Bachelor and Doctor of Medicine (M.B. and M.D.) and of Bachelor and Master of Surgery (Ch.B. and Ch.M.). The course for the Bachelors' degrees extends over five years from the date of registration with the General Medical Council. As a rule the first four of these years must be spent in the University, but the Senate has power of recognizing attendance at another University as part of the attendance qualifying for the Degrees of Bachelor of Medicine and Bachelor of Surgery, and of recognizing Examinations passed at such other Universities as exempting from the Examinations in Chemistry, Physics and Comparative Anatomy for such Degrees, provided that no Candidate from another University be admitted to the Degree of Bachelor until he shall have attended in the University the prescribed courses of study extending over a period of at least three years. The fifth year may be spent at any other school or schools of medicine recognised by the University.

### M.B. and Ch.B. Degrees.

(i) Candidates for the above degrees must be matriculated in the University.

For regulations for Matriculation see p. 122.

(ii) Candidates must pursue the prescribed curriculum of study, and pass the prescribed examinations, subject to the following regulations:—

- (a) The Winter Session includes the Winter and Spring Terms, and the Summer Session corresponds with the Summer Term as set down in this Calendar.
- (b) At the end of each course of lectures or practical instruction, the student must obtain the signature of his teacher in the schedule book, which he will be required to lodge with the Registrar when entering his name for an examination.

- (c) This certificate must contain a statement that the student has attended to the satisfaction of the Professor, Lecturer, or Hospital Teacher not less than two-thirds of the lectures, practical classes, or clinical instruction, of which the course consists, together with such class-examinations or other exercises as each teacher may prescribe in connection with his own course. In cases of illness duly certified, the Dean has a discretionary power to relax the rule as to the attendance at two-thirds of the lectures.
- (d) No student will be signed up for any course as having satisfactorily attended the same unless he shall have been awarded at least forty per cent. of the marks obtainable for the term's work, whether these marks are awarded for practical work or for term examinations or for both.
- (e) The marks awarded for the term's work in any subject will be added to the marks awarded at the University examination in the same subject, and, though these marks will not enable a man who has done badly at that examination to pass, they may cause his failure, since a certain aggregate percentage will be required, or may have an important effect upon his position in the class-list.
- (f) These regulations will apply to Hospital Classes also in the case of Undergraduates.
- (g) The classes in the University must be taken out in the order and during the years specified in the Time Table, unless the student shall have received written permission from the Dean to vary the order of his study. In no case will students be permitted to enter upon Hospital study, other than that set down for the second year, until the Second Examination shall have been passed.
- (h) In each examination, except the second, the student will be required to pass in *all* the subjects set down

for that examination; failure in any one subject will entail the loss of the examination.

- (i) The First, Second, Third, and Fourth Medical Examinations take place in the month of June in each year, but Supplementary Examinations will also be held in the month of September. Students are in general required to take the ordinary Examinations in June, but in cases of illness or in other special circumstances the Dean of the Faculty may at his discretion allow students to postpone their Examinations \* until September. In the case of the Second Examination students may present themselves for examination in two of their subjects in June, and if they pass in these subjects may present themselves for examination in the remaining subject in September. Students who fail in one or more of their subjects at the June Examination may be allowed, at the discretion of the Board of Examiners, to present themselves for re-examination in the following September. Students who pass in the practical examination in a subject at the June examination may be excused the practical examination in such subject in the following September, at the discretion of the Board of Examiners. The Board of Examiners may, at their discretion, require a candidate who has failed at an examination to attend during a second year courses of Practical or Theoretical Study or both, in the subject or subjects in which he has failed.
- (j) The final examination takes place in June and December in each year. In the case of failure in the final examination, the student will be required, before being re-admitted to examination, to produce a certificate as evidence of six months further attendance on clinical work at some recognized hospital or hospitals.

NOTE.—Every candidate will be required to produce a certificate of having been registered as a medical student by the General Medical Council before admission to the first medical examination.

## Course of Instruction and Examinations for Degrees in Medicine and Surgery.

### FIRST YEAR.

*Anatomy*.—One course of lectures during the Winter Session, with practical work extending over the same period.

*Chemistry*.—One course of lectures and practical work during the Winter Session, with a second course, accompanied by practical work during the Summer Session.

**NOTE**.—Students are strongly recommended to study Elementary Chemistry before entering on this course.

*Physics*.—One course of lectures accompanied by practical work, extending over the Winter and Summer Sessions.

*Physiology*.—One course of practical work during the Summer Session. Before commencing this course students will be required to provide themselves with a microscope subject to the regulations on page 408.

At the end of the First Summer Session students will be eligible for the First Examination, viz., Chemistry and Physics.

**NOTE**.—Students who have passed the Intermediate Examination for Degrees in Science in these subjects will be exempt from further examination in them.

### SECOND YEAR.

*Anatomy*.—One course of lectures during the Winter Session, and one during the Summer Session, with practical work extending over the same period.

**NOTE**.—The certificate in Anatomy must show that the student has dissected the entire body *at least* once.

*Physiology*.—One course of lectures accompanied by practical work during the Winter Session, and a course of lectures during the Summer Session.

*Zoology and Comparative Anatomy.*—A course of lectures during the Winter Session, with practical work extending over the same period.

*Hospital.*—Attendance on special Surgical Tutorial Classes will be required on Saturday mornings during the Winter and Summer Sessions.

At the end of the second Summer the student who has duly followed the above courses will be eligible for the Second Examination, viz., Anatomy, Comparative Anatomy and Physiology. Students may present themselves for *all* or any *two* of these subjects. In either case a candidate must pass in two subjects in order to secure credit for any part of the Examination.

### THIRD YEAR.

*Surgery.*—One course of lectures during the Winter Session.

*Pathology.*—One course of lectures and practical work during the Winter Session, with a course of practical work during the Summer Session. Before attending this course the student will be required to add to his microscope the additional parts mentioned in the Regulations on page 408.

*Materia Medica.*—One course of lectures during the Summer Session, with a practical course of instruction in Pharmacy during the same Session.

*Hospital.*—The course of instruction as set down in the Regulations for Hospital work must be followed.

At the end of this year the student who has been duly certified may present himself for the Third Examination in Pathology and Bacteriology at the end of the Summer Session.

### FOURTH YEAR.

*Medicine.*—One course of lectures during the Winter Session.

*Surgery.*—One course of lectures during the Winter Session.

*Hygiene and Public Health*.—One course of lectures during the Winter Session.

*Midwifery*.—One course of lectures during the Winter Session.

*Forensic Medicine and Toxicology*.—One course of lectures accompanied by practical work in both subjects during the Summer Session.

*Gynaecology*.—One course of lectures during the Summer Session.

*Mental Diseases*.—One course of lectures during the Summer Session.

*Hospital*.—The course of instruction as set down in the Regulations for Hospital work must be followed.

At the end of this year the student who has been duly certified for the courses prescribed for the third and fourth years will be eligible to present himself for the Fourth Examination, viz., Forensic Medicine, Toxicology and Public Health.

#### FIFTH YEAR.

*Medicine*.—One course of lectures during the Winter Session.

*Therapeutics*.—One course of lectures during the Winter Session.

*Surgical and Medical Anatomy*.—One course of lectures extending over three months during the Winter Session.

*Operative Surgery*.—One course of practical instruction during the Winter Session.

*Ophthalmology*.—One course of lectures during the Winter Session.

*Hospital (General Clinical)*.—The course of instruction as set down in the regulations for Hospital work must be followed.

*Fever Hospital*.—A course of instruction extending over not less than three months.

NOTE.—The certificate must include a statement that the student has personally taken notes of not less than six cases of fever. The notes of these cases must be presented to the examiners at the time of the examination.

*Asylum Practice.*—A course of instruction extending over not less than three months.

NOTE.—The student will be expected to present to the examiners at the time of examination at least four properly filled up certificates of lunacy drawn up by himself after personal examination of insane patients, and notes of two cases taken by himself, both to be certified by his teacher.

*Vaccination.*—The student must follow the course laid down by the instructions of the Local Government Board.

In addition to evidence that the above courses have been duly completed, the student will, on presenting himself for the final examination, be required to produce the following additional certificates :—

- (a) Of having attained his twenty-first year.
- (b) Of having during his third and fourth years performed the duties of clerk and dresser according to the rules laid down in the regulations for Hospital work.
- (c) Of having attended during at least twelve months the demonstrations given in the *post-mortem* room of a recognised Hospital, and of having acted for three months as *post-mortem* clerk.
- (d) Of having attended during three months the practice of an Obstetric Department or Hospital recognised by the University or of having attended not less than twenty cases of labour, the first five at least of which shall have been conducted under the personal supervision of a registered practitioner, and of having continued such attendance throughout the puerperal period.
- (e) Of having, during at least three months, received in either a general or special Hospital, recognised by the University, Clinical instruction in the Diseases peculiar to Women.

NOTE.—The student will be expected to present to the examiners, at the time of his examination, notes of at least six cases of this character taken by himself and certified as such by the teacher from whom he received his instruction.



- (f) Of having, during at least three months, received in either a general or special Hospital, recognised by the University, Clinical instruction in Ophthalmology.

**NOTE.**—the Certificate must state that the student has received personal instruction in the detection and correction of errors of refraction.

- (g) Of having received practical instruction in the administration of anæsthetics.

On presenting the above certificates, the student will be eligible to enter for the Final Examination in Medicine, Surgery, Midwifery, Gynæcology, Therapeutics, Ophthalmology, and Mental Diseases.

On passing this examination the student will be permitted to proceed to the Degrees of Bachelor of Medicine and Bachelor of Surgery.

At the end of one year from the date of having passed this examination the candidate will be eligible to present himself for the higher Degrees of either Doctor of Medicine or Master of Surgery or both.

### **M.D. and Ch.M Degrees.**

At the end of one year from the date of having passed the Final M.B., Ch.B. examination the candidate will be eligible to present himself for the higher degrees of either Doctor of Medicine or Master of Surgery or both.

Candidates for either of these Degrees will be required to comply with the following Regulations :—

### **For the Degree of M.D.**

Every candidate for this degree shall present a Thesis embodying observations in some subject embraced in one of the departments of the medical curriculum enumerated below, and in addition he will be required to pass a general examination in Principles and Practice of Medicine. It will be in the power of the Board of Examiners to exempt a candidate whose Thesis is of exceptional merit from any part of these examinations.

A Thesis may be presented in any of the following departments of study:—

- (a) Anatomy, including Comparative Anatomy.
- (b) Physiology.
- (c) Human or Comparative Pathology.
- (d) Bacteriology.
- (e) Pharmacology.
- (f) Therapeutics.
- (g) Medicine.
- (h) Mental Diseases.
- (i) Preventive Medicine or Public Health.
- (j) Toxicology.
- (k) Legal Medicine.
- (l) Midwifery.

#### **For the Degree of Ch.M.**

Candidates are required to comply with one or other of the following Regulations:—

I. A Candidate may present a Thesis, embodying original observations in some subject embraced in the medical curriculum and approved by a Board of medical examiners to whom the Thesis will subsequently be submitted—on the Report of which Board the Degree will be awarded or withheld. The candidate may be examined on the subject which he has chosen for his Thesis, and the examiners may require to see the notes of original observations on which the Thesis is based.

II. A Candidate may pass a general examination (written and practical) in Surgery, and in addition show special proficiency in any one of the following subjects to be chosen by the candidate:—

- (a) Regional Surgery,
- (b) Gynæcology,
- (c) Ophthalmology,
- (d) Diseases of the Ear, Nose and Throat.

**The Fee for either of these Examinations is Ten Pounds.**

## REGULATIONS FOR HOSPITAL WORK.

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During the First Year there is no Hospital Work.

### SECOND YEAR.

Students must attend Hospital for two hours on Saturday mornings, when a Surgical Tutorial Class will be held, and instruction given in Clinical Surgery.

### THIRD YEAR.

Out-Patient dressing, three months.

In-Patient dressing, six months.

Clinical Lectures on Surgery.

Surgical and Medical Ward Classes.

Medical Tutorial Classes (three months attendance will be required upon these before In-Patient dressing is commenced).

### FOURTH YEAR.

In-Patient clerking, six months.

Clinical Lectures on Medicine.

Medical and Surgical Ward Classes.

Post-mortem clerking, three months. Attendance at post-mortem examinations and demonstrations during the year.

### FIFTH YEAR.

Clinical instruction in Medicine and Surgery.

Clinical Midwifery (twenty cases).

Gynæcological clerking, three months.

Ophthalmology, three months.

Vaccination, six weeks.

Course in Anæsthetics. Attendance on three Lectures, and the administration of Anæsthetics on ten cases.

Fever Hospital, three months.

Hospital for Mental Diseases, three months.

The following Institutions are recognized by the University for Special and Clinical Instruction.

FOR GENERAL CLINICAL PURPOSES.

The General Hospital.

The Queen's Hospital.

FOR FEVERS.

The Birmingham City Hospital.

FOR LUNACY.

The Birmingham City Asylum.

FOR OBSTETRICS.

The Obstetric Department of the Queen's Hospital.

The Rotunda Hospital, Dublin.

The Coombe Hospital, Dublin.

FOR OPHTHALMOLOGY.

The Eye Department of the Queen's Hospital.

The Birmingham and Midland Eye Hospital.

ASSOCIATED HOSPITALS.

The Royal Orthopædic and Spinal Hospital.

The Birmingham and Midland Ear and Throat Hospital.

FOR DENTAL HOSPITAL PRACTICE.

The Birmingham Dental Hospital.

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# FACULTY OF MEDICINE.

## Syllabuses of Courses.

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### ANATOMY.

*Professor:* BERTRAM C. A. WINDLE, M.A., M.D., Sc.D.  
(Dub.), F.R.S., F.S.A.

*Lecturer:* WILLIAM WRIGHT, D.Sc.; M.B., Ch.B. (Vict.),  
F.R.C.S.

*Demonstrators:* JNO. H. WATSON, M.B., B.S. (Lond.),  
F.R.C.S., VIOLET A. P. COGHILL, M.B., Ch.B. (Edin.).

*Hon. Demonstrators:* W. E. BENNETT, M.B., Ch.B., F.R.C.S.,  
J. JAMESON EVANS, M.D.; C.M. (Edin.), F.R.C.S.,

*Special Lecturer on Osteology:* WILLIAM WRIGHT, D.Sc.

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### I.—Descriptive Anatomy.

The *First Year's Course* deals with Osteology, Arthrology and the Anatomy of the Upper and Lower Extremities. The lectures are delivered during the Winter Session at 10.30 o'clock, on Mondays, by Professor Windle, and on Wednesdays, by Dr. Wright.

The *Second Year's Course* is partly given during the Winter, partly during the Summer Session. During the *Winter* lectures are delivered on the Osteology of the Cranium, and on the Thorax, Abdomen, and Head and Neck, excluding the Brain and Organs of Special Sense, at 12 o'clock, on Mondays, Tuesdays, Wednesdays and Thursdays. The lectures on Tuesday, Wednesday, and Thursday, are delivered by Professor Windle, and the lecture on Monday by Dr. Wright. During the *Summer* lectures are delivered on the Central Nervous System and the Organs of Special Sense on Mondays, Wednesdays and Fridays at 12 o'clock.

All these courses are accompanied by Demonstrations and Classes specially arranged to follow up the instruction given in the Lecture Theatre.

The course of Lectures on *Human Embryology* is given during the second Winter Session, on Tuesdays at 3 p.m.

## II.—Practical Anatomy.

The Dissecting Room is open during term time from 9 a.m. to 5 p.m., except on Saturdays, when it is closed at 1 p.m. One or more of the Staff of the Department is always in charge of the room and ready to help students finding themselves in any difficulty with their parts. Information as to the detailed working of the Department will be found in the Guide which is presented to every student on entering for a course of Anatomy.

There is a separate Dissecting Room for Women Students in charge of Dr. Coghill.

The Museum, which is open to all students, contains a large collection of frozen sections and dissections mounted in spirit, also of specially prepared and marked bones. There are a number of embryological models.

## III.—Medical and Surgical Anatomy.

*Lecturer:* WILLIAM F. HASLAM, F.R.C.S.

A Course of Lectures and Demonstrations for students in their fifth year will be given by the Lecturer on Applied Anatomy on Mondays, Wednesdays and Fridays, from October to December inclusive, at 4 p.m.

## PHYSIOLOGY.

*Professor:* E. W. WACE CARLIER, M.Sc. ; M.D. (Edin.),  
F.R.S.E.

*Lecturer:* J. H. RHODES, M.B., Ch.B. (Edin.), M.R.C.S.

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### I.—Systematic Physiology.

A Course of Lectures in Physiology will be delivered at 10.30 a.m. each day, except Monday and Saturday, throughout the Winter Session, and at 3 p.m. on Tuesdays and Thursdays throughout the Summer Session. It will consist of 100 lectures.

The Course will comprise :—

#### WINTER.

- (1) General Chemistry of the Animal Body.
- (2) Structure, Chemistry and Physiology of the Cell and of the Simple Tissues.
- (3) Muscle and Nerve.
- (4) General Nutrition, including circulation of the blood and lymph, respiration (voice and speech), alimentation, nutrition of the tissues, internal secretions, excretion and the minute structure of the organs concerned.
- (5) Animal Heat, its production and regulation.
- (6) Dietetics.
- (7) Reproductive System.
- (8) The Senses and Sense Organs.

#### SUMMER.

- (9) The Sense Organs continued.
- (10) The Central Nervous System, its structure and functions.

### II.—Practical Physiology.

The Course will extend over one Summer and one Winter Session.

**HISTOLOGY.**—This Class will meet in the Physiological Laboratory every day, except Saturday, throughout the Summer Session from 11.0 to 1. Each student will have the use of a microtome and will be supplied with all reagents, but he will be expected to furnish himself with a microscope (see p. 408), slides, cover-glasses, a razor and other sundries.

Each student will prepare and study microscopical specimens of most of the tissues and organs of the body, and will receive practical instruction in the use of the microscope and in elementary technique.

### **III.—Experimental Physiology.**

The Class will meet in the Physiological Laboratory on Tuesday of each week from 2.30 to 4.30 during the first half of the Winter Session.

Each student will perform the simpler experiments, illustrating the physiology of muscle, nerve, heart and reflex-action, and will receive practical instruction in the use of the sphygmograph, cardiograph, stethograph, laryngoscope, and ophthalmoscope.

The student must supply himself with a dissecting case.

### **IV.—Physiological Chemistry.**

This Class will meet in the Physiological Laboratory on Tuesday of each week during the latter half of the Winter Session from 2.30 to 4.30.

Each student will perform the qualitative and quantitative analyses of the urine in its normal and abnormal conditions with special reference to clinical work, with additional practical exercises on the chemistry of the proteids, carbohydrates, food stuffs and their digestion, blood and bile.

### **V.—Advanced Practical Physiology.**

SEE FACULTY OF SCIENCE.

The Physiological Laboratory is open daily, except Saturday, during both Summer and Winter Sessions from 10 a.m. to 5 p.m. for the prosecution of original research. Application to be made to the Professor.

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## CHEMISTRY.

*Professor:* PERCY F. FRANKLAND, M.Sc. : Ph.D. (Würzburg), B.Sc. (Lond.), LL.D. (St. And.), F.R.S.

*Lecturers:* { ALEX. MCKENZIE, M.A., D.Sc. (St. And.),  
Ph.D. (Berlin.)  
ALEX. FINDLAY, M.A., D.Sc. (Aber.), Ph.D.  
(Leipzig.)

*Demonstrators:* { T. S. MOORE, B.A. (Oxon.), B.Sc. (Lond.)  
(Vacant).

*Special Lecturer on Organic Chemistry:* ALEX. MCKENZIE, D.Sc.

*Special Lecturer on Physical Chemistry:* ALEX. FINDLAY, D.Sc.

## Lecture Course on General Inorganic Chemistry.

The Lectures are delivered at 9.30 a.m. on Mondays, Tuesdays, Wednesdays and Thursdays during the Winter Session.

Some of the above meetings of the class will be devoted to tutorial work. Attendance at the tutorial meetings of the class is compulsory, as is the performance of the exercises set by the Professor.

## Lecture Course on Organic Chemistry.

The Lectures are delivered at 9.30 a.m. on Mondays, Wednesdays, and Fridays, during the Summer Session.

Candidates for the First Medical Examination may be required to show knowledge of any of the subjects set forth in the following Syllabus :—

## I. GENERAL.

Nature of chemical change. Elements and compounds. Chemical affinity and the modes of chemical action. Regularities exhibited in the formation of compounds. Indestructibility of matter. Laws of constant, multiple, and equivalent proportions. Atomic theory. States of matter. Properties of Gases. Kinetic theory. Molecular theory. Avogadro's hypothesis. Atomic and molecular weights. Vapour density, isomorphism, atomic and molecular heats.

Chemical nomenclature, formulæ, equations. Valency.

Solution. Osmotic pressure. Electrolysis. Ionic theory.  
 Acids, bases, and salts.  
 Thermochemistry. Energy, its transformation and conservation. Liquefaction of Gases.

## II. SPECIAL.

Hydrogen. Oxygen. Ozone. Allotropy. Water; physical properties, natural waters. Hydrogen peroxide. Nitrogen; circulation of, in nature. The Atmosphere. Compounds of nitrogen with hydrogen; oxides of nitrogen; oxyacids of nitrogen; halogen compounds of nitrogen.  
 Carbon, its circulation in nature. Coal. Oxides of carbon. Hydrocarbons; methane, ethylene, acetylene. Combustion, flame, and luminosity.  
 Coal-gas, producer-gas, water-gas, oil-gas. Artificial illumination.  
 Chlorine and the halogens. Their compounds with hydrogen, their oxides, and oxyacids.  
 Sulphur; compounds with oxygen, hydrogen, and carbon; oxyacids of sulphur.  
 Phosphorus; compounds with hydrogen, and oxygen; oxyacids of phosphorus. Arsenic, antimony, and bismuth; comparison of their properties and compounds with those of phosphorus and nitrogen.  
 Boron, and its more important compounds.  
 Classification of the Elements. Periodic law.

## METALS.

Occurrence, modes of isolation, and general properties of the following metals, and their more important compounds:—  
 Sodium, potassium, barium, strontium, calcium, magnesium, iron, chromium, aluminium, zinc, manganese, nickel, cobalt, mercury, copper, bismuth, cadmium, silver, and gold.

TEXT BOOK.—Newth's Inorganic Chemistry.

## III. ORGANIC CHEMISTRY.

Analysis of Organic compounds. Formulæ. Isomerism. Structure.  
 Hydro-carbons. Paraffins, Ethylene, Acetylene. Halogen derivatives. Chloroform. Iodoform.  
 Alcohols. Fermentation. Ether. Aldehydes. Chloral. Fatty Acids. Fats, Soap, and Saponification. Glycerine. Glycol. Oxalic acid. Succinic acid. Tartaric acid. Lactic acid. Citric acid.  
 Carbo-hydrates.  
 Cyanogen compounds and Amines.  
 Urea, Glycocoll, Uric acid.

Aromatic compounds. Benzene, Phenol, Aniline, Benzoic acid, Salicylic acid.

TEXT BOOK.—Remsen's Organic Chemistry.

### Practical Chemistry.

The Class meets at 2 p.m. on Mondays and Wednesdays during the Winter Session, and on Mondays, Tuesdays, Thursdays and Saturdays, during the Summer Session.

The practical work in the laboratory is intended to supplement the instruction given in the lectures, and to make the student personally familiar with the preparation of pure substances, and with the elements of qualitative and quantitative analysis.

### Sanitary Chemistry.

Laboratory Course (Times by arrangement).

*B.Sc. or Diploma in Public Health.*—The Course extends over six months (not less than six hours weekly).

### Synopsis of the Course.

The use of the balance.

The methods of volumetric analysis, including the preparation of standard solutions, alkalimetry and acidimetry.

Kjeldahl's method for the determination of nitrogen.

The analysis of water, including the estimation of total solids (lime, magnesia, sulphates, chlorides, nitrates and nitrites, ammonia and poisonous metals); determination of temporary and permanent hardness, including the preparation of standard soap solution; organic impurities, acidity and alkalinity.

The detection of polluting gases.

Estimation of the amount of carbon dioxide in air.

Simple methods of eudiometry.

Analysis of milk, butter, beer.

Acidity of vinegar.

Determination of Urea.

Estimation of cane and grape sugars.

Microscopic examination of starches, muscular fibre, and the fibres of wool, cotton, and silk.

FEE:—£8 8s.

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## PHYSICS.

*Professor:* J. H. POYNTING, M.Sc.; Sc.D. Cantab, F.R.S., D.Sc. (Vict.), late Fellow of Trinity College, Cambridge.

*Lecturer:* G. A. SHAKESPEAR, B.A. (Cantab.), B.A., B.Sc. (Lond.).

*Assistant Lecturers:* { G. BARLOW, D.Sc. (Lond. and Wales)  
(Vacant.)

*Special Lecturer on Experimental Physics:* G. A. SHAKESPEAR, B.A.

During the Winter Session the Lectures will be on Mondays, Wednesdays and Fridays, at 11.30.

During the Summer Session the Lectures will be on Tuesdays and Thursdays, at 9.30.

The Practical Class will be held in the Laboratory on Fridays, at 2.30 p.m. in both Sessions.

### Syllabus of Course.

#### *Properties of Solids—*

Sticking and sliding friction. Strains and stresses. Bulk strain and shear strain. Various kinds of permanent change of shape and rupture. Crystalline and amorphous solids.

#### *Properties of Liquids—*

Viscosity. Compressibility. Surface tension.

#### *Properties of Gases—*

Compressibility. Viscosity.

Kinetic theory of matter. Diffusion, solution, osmotic pressure.

#### *Heat—*

Temperature. Mercury in glass thermometer. Determinations of high and low temperature. Expansion of solids and liquids. Circulation and convection in liquids. Expansion of gases at constant pressure and increase of pressure at constant volume. Gas thermometers. Circulation and convection in gases. Movements of the atmosphere.

Quantity of heat. Specific heat and simple modes of measuring it.

Conduction of heat. Conductivity.

Heat a form of energy. The forms of energy and their transformations according to fixed rates of exchange. The conservation of energy, Joule's method of determining the mechanical equivalent of heat. The nature of heat on the kinetic theory of matter. Limitation in the amount of heat which can be ~~per~~formed to work.

Change of state. Latent heat. Liquid vapour change. Evaporation. Boiling vapour pressure. Dependence of boiling point on pressure and explanation. Modes of measuring vapour pressure. Explanation of vapour pressure on the kinetic theory. Water vapour in the atmosphere. Hygrometers. Cloud. Fog. Dew. Solid-liquid change. Melting points. Change of volume on melting. Effect of pressure on melting point. Regelation.

Radiation. High and low radiating and absorbing powers. Comparison of properties of radiation from hot bodies and properties of light. Identification. The spectrum. Substances absorb the radiations which they can emit. Dark lines in solar and stellar spectra.

### *Light—*

Light a form of energy. Rectilinear propagation. Shadows. Eclipses. Inverse square law. Simple Photometers. Reflection, refraction, and dispersion. Velocity of light.

Light a form of wave motion. Illustrations of interference. The diffraction grating. Polarisation of light.

Mirrors. Prisms. Lenses. The eye. Simple forms of telescope and microscope.

### *Sound—*

Sound arises from vibrating sources which send out longitudinal waves in air. Characteristics of the waves corresponding to loudness, pitch, and quality. Velocity of sound in air, and other media. Determinations of frequency. Resonance; its use to analyse sounds. Harmonics and upper partials. Quality.

Transverse vibrations of strings. Vibrations of air in pipes. Other vibrating sources.

Beats. Concord and discord. Combination tones.

### *Magnetism—*

Properties of magnets. The two poles; their equality and inseparability. Magnetisation by induction. Methods of making magnets. Inverse square law. Magnetic fields and lines of force. The earth as a magnet. Declination, dip, and intensity.

*Electricity—*

The two kinds of electrification and simple modes of producing them. Conductors and Insulators. The gold leaf Electroscope. Electrification by induction. Frictional Electrical Machines. The Electrophorus. The Wimshurst Machine. The Leyden Jar. Production and disappearance of the two electrifications always in equal quantities. The electric field, considered as the seat of electric strain, electric force, and electric energy. The inverse square law. Potential and capacity. Distribution on conductors.

*Electro-magnetism—*

Electric discharge and the magnetic effects accompanying it. Electro-magnetic waves. Electric current. Voltaic and Storage cells. The magnetic properties of current circuits. The ampere. Galvanometers and amperemeters. Electric motors. Ohm's Law. Resistance. The heat developed in the circuit. Joule's Law. The ohm. The volt. Electrolysis. Electro-chemical equivalents. The induction of currents. Lenz's Law and Faraday's Law. The Dynamo. The Induction Coil.

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## ZOOLOGY AND COMPARATIVE ANATOMY.

*Professor:* T. W. BRIDGE, M.Sc.; Sc.D. (Cantab.), F.R.S.,  
F.L.S.

*Lecturer:* WALTER E. COLLINGE, M.Sc.

A Course of about Forty Lectures will be given during the Winter Session of the second year.

*Lecture Days.*—Mondays and Wednesdays, at 2 p.m.

### SYLLABUS.

Distinctive characters of Animals and Plants, as illustrated by a comparison of the structure and physiology of *Hæmatococcus* and *Spirogyra* with *Amœba* and *Hydra*.

The Classification of Animals. Outline of the diagnostic characters of the primary groups of animals.

Classification of Vertebrates. Distinctive features of the different classes into which the Vertebrata are divided.

The Coelom; its mode of development in different groups, and its derivatives.

Morphology of the skeleton; the organs of digestion, circulation, respiration, excretion and reproduction; and the nervous system and organs of special sense, in such typical Vertebrata as the Dog-fish (*Scyllium*), the Frog (*Rana*), the Pigeon (*Columba*), and the Rabbit (*Lepus*).

The classification of Mammalia. Distinctive characters of the Prototheria (*Echidna*), Metatheria (*Macropus*), and Eutheria (*Lepus*).

Comparison of Man (*Homo*) with other Mammalia.

Vestigial organs in Man and other Mammalia—their nature and significance.

Methods of embryonic nutrition; ova and food-yolk; placentas. Direct and larval development.

### Laboratory Class.

The Practical work will include the microscopic examination of *Hæmatococcus*, *Spirogyra*, *Amœba* and *Hydra*, and the dissection of the Dog-fish, Frog, Pigeon and Rabbit.

*Practical Class.*—Mondays and Wednesdays, from 3 till 5 p.m.

## MEDICINE.

*Professor* : R. SAUNDBY, M.Sc. ; M.D. (Edin.), F.R.C.P.,  
LL.D.

*Professor* : A. H. CARTER, M.Sc. ; M.D. (Lond.), F.R.C.P.

*Assistant* : J. W. RUSSELL, M.A., M.D. (Cantab.), M.R.C.P.

*Lecture Days*.—Tuesday, Wednesday, and Friday, at  
3 p.m.

This course extends over two Winter Sessions, and  
includes—

1. An explanation of the nomenclature and classification of  
disease. The principles of etiology, symptomatology,  
diagnosis, prognosis, and treatment of disease in general.
2. A description of special diseases, together with their causa-  
tion, prevention, diagnosis, prognosis and treatment.

Specific Infectious Diseases.

Diseases of the Nervous System, Functional and Organic ;  
of the Brain, Spinal Cord, and Peripheral Nerves.

Diseases of the Muscles.

Diseases of the Heart and of the Blood Vessels.

Diseases of the Respiratory System, Functional and Organic ;  
of the Larynx, Trachea, Lungs, and Pleural Sacs.

Diseases of the Digestive System.

Diseases of the Kidneys.

Constitutional Diseases.

The Intoxication and Sunstroke Diseases of the Blood and  
Ductless Glands.

Diseases due to Animal Parasites.

Diseases of the Skin.

The Course will be illustrated by specimens from the  
Pathological Museum, and by drawings, diagrams, and  
charts.



Written Class Examinations are held during each term and are compulsory upon all students. Regular tutorial instruction is given by Dr. Russell to all students of the Class who wish to attend.

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## SURGERY.

*Professor* : BENNETT MAY, M.Sc. ; M.B., B.S. (Lond.),  
F.R.C.S.

*Professor* : GILBERT BARLING, M.Sc. ; M.B., B.S. (Lond.),  
F.R.C.S.

*Assistant* : GEORGE HEATON, M.A., M.B. (Oxon.),  
F.R.C.S.

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*Lecture Days*.—Tuesday, Wednesday, and Friday, at 4 p.m.

This Course, extending over two Winter Sessions, is devoted to a systematic consideration of the Principles and Practice of Surgery. It includes a complete description of—

1. General Principles, as illustrated by Repair and its aberrations.

Inflammation and its results.

The various forms of blood poisoning.

Tuberculosis. Syphilis.

Tumour formations, &c.

2. The Surgery of Special Regions as far as possible.

The Assistant to the Chair of Surgery gives tutorial instruction to Senior Students, and holds preparatory classes for the final Examination. Written Examinations are held at stated periods, and are compulsory upon all Students.

The Course will be illustrated by Specimens from the Pathological Museum, and by drawings, diagrams, and charts.

## PATHOLOGY AND BACTERIOLOGY.

*Professor:* R. F. C. LEITH, M.Sc.; M.A., B.Sc., M.B. (Edin.), F.R.C.P.E.

*Assistant Lecturers in Bacteriology:* { JAMES MILLER, D.Sc., M.D.,  
M.R.C.P.E.  
C. LEEDHAM-GREEN, M.B., Ch.M.,  
F.R.C.S.

*Demonstrator in Macroscopic Morbid Anatomy:* J. D. STANLEY, M.D.

*Assistant Curators of the Pathological Museum:* { J. T. HEWETSON, Ch.M., M.D. (Edin.),  
F.R.C.S.  
THOMAS WILSON, Ch.M., M.D. (Lond.),  
F.R.C.S.  
A. S. BARNES, M.D., M.R.C.P.

*Special Lecturer in Pathology:* JAMES MILLER, M.D.

### A.—Ordinary course for Medical Students.

This Course consists of two parts, viz., (1) a Systematic Course of Lectures on General Pathology and Bacteriology given in the winter term, and on Special Pathology given in the spring term, and (2) a Practical Course upon the same subjects, partly concurrent with (1) and partly given in the following summer term.

#### I.—The Systematic Course.

The Lectures commence on October 3rd, and are given daily, at 2 o'clock. They are fully illustrated by Macroscopic, Microscopic and Lantern Preparations, and a Special Series of Demonstrations on Macroscopic Morbid Anatomy is also given weekly. The Lectures include:—

#### 1. GENERAL PATHOLOGY AND BACTERIOLOGY:—

- (1) Altered conditions of the circulation.
- (2) Inflammation.
- (3) Retrogressive Disturbances of Nutrition.
- (4) Tumours.
- (5) Animal Parasites.
- (6) Pathogenic Bacteriology.

#### 2. SPECIAL PATHOLOGY:—

The systematic study of the Etiology, Morbid Anatomy, and Histology of the diseases of the systems and organs of the body.

## II. (a)—The Winter Practical Course.

This Course is intended to fit in with and illustrate as far as possible the subjects treated of in the Systematic Lectures. It will meet on Mondays and Thursdays, at 3, immediately after the lectures throughout both the Winter and Spring Terms, each meeting lasting two hours. Special attention will be given to Inflammation, Healing Processes, Tumours, Animal Parasites and Bacteriology.

## II. (b)—The Summer Practical Course.

The Summer part of this Class commences on Monday, April 17th, at 2 o'clock, and meets on Monday and Friday of each week, each meeting occupying two hours. The Histological and other Methods of practical pathological investigation are studied, and the various diseased organs and tissues are examined in detail, both macroscopically and microscopically by each student.

Each student is supplied with all the necessary re-agents and apparatus, but students must provide themselves with a microscope. (See Regulations, p. 408).

## B.—Course of Advanced Bacteriology.

This Class begins on Tuesday, January 10th, at 3.30 o'clock, and meets on Tuesdays, Wednesdays, and Fridays of each week until the end of March, each meeting occupying two hours. In addition there are special meetings in sections according to arrangement. This Course qualifies for the various Diplomas and Degrees in Public Health of this University and other Bodies. It consists of lectures, demonstrations, laboratory instruction, and practical work in Bacteriology, especially in relation to disease, public health, its application to various industries, the disposal of sewage, &c.

It includes :—

I. GENERAL.—Methods of Sterilisation. Preparation of Culture Media. Isolation and Cultivation of Germs. Methods of Examination, staining, &c., of Bacteria. The separation of their products, &c.

II. SPECIAL.—(1) The systematic study of the various pathogenic and the more important non-pathogenic bacteria in regard to cultural and morphological characters, methods of producing disease, antitoxin treatment and immunity. (2) The examination of water, milk, foods, &c. (3) Antiseptics and sterilisation in detail, &c., &c.

FEE :—Four Guineas.

INCIDENTAL FEE :—One Guinea.

### C.—Course of Clinical Pathology & Bacteriology.

A Course suited to qualified medical men is given in the Summer Session, commencing on Tuesday, April 18th. It meets twice or thrice weekly for about two months; hours of meeting, 3.30 to 5.30, or by arrangement. It is devoted to the pathological and bacteriological methods of practical importance in the diagnosis of disease in hospital or private practice. It includes demonstrations and practical work in—

- (1) Histological Methods for the examination of tumours, pieces of tissue and uterine scrapings.
- (2) The examination of the urine, chemically and microscopically.
- (3) The examination of the gastric contents, for free HCl, for disintegrated blood, &c.
- (4) The examination of the sputum.
- (5) The examination of fluids obtained by puncture of serous and other effusions, by lumbar puncture, by puncture of echinococcal and other cysts.
- (6) The examination of the blood.
- (7) A short consideration of those bacteria commonly met with in pathological processes in man, *e.g.*, the Staphylococci and streptococci, the gonococcus, the pneumococcus, the typhoid bacillus and colon bacillus, the diphtheria bacillus and the tubercle bacillus.

Systematic explanations of these subjects, illustrated by lantern demonstrations, will also be given, in addition to the practical work of the course.

FEE :—£3 3s.

INCIDENTAL FEE :— 15s.

The Pathological and Bacteriological Laboratory is open daily from 9 a.m. till 6 p.m. for the prosecution of private research, under the direction of Professor Leith and his assistants, to whom applications should be made.

The Pathological Museum is open daily, from 9 a.m. till 5 p.m., under the direction of Professor Leith. Several type-written catalogues, containing descriptions and particulars of the specimens, are available for consultation.

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## HYGIENE AND PUBLIC HEALTH.

*Professor:* A. BOSTOCK HILL, M.Sc. ; M.D.,  
D.P.H. (Camb.), F.I.C.

*Assistant:* R. A. LYSTER, M.B., Ch.B. ; D.P.H., B.Sc.  
(Lond.).

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*Lecture Day.*—Mondays, at 3 p.m., during the Winter Session.

This Course will include instruction in Hygiene as required for the ordinary Pass Examination, and will also be specially adapted to the requirements of candidates for degrees and diplomas in Public Health and State Medicine. The Lectures will be illustrated by experiments, diagrams, and a complete set of models. In connection with the Department there is a collection of Sanitary Appliances open to all students attending this class.

The subjects treated will be as follows:—

Introductory, aim and scope of Hygiene, results already obtained.

Water supply—varieties of—quantity and quality of water.

Diseases produced by bad water. Water Analysis.

Air and Ventilation, Impurities of Air, Standard of Purity, Heating and Lighting, Natural and Mechanical Ventilation, Appliances.

Food and Diet, Unwholesome Food, Adulteration of Food, Characteristics of good Meat, Fish, &c. Diseases of Animals in relation to the Health of Man.

The Soil in relation to Health.

The Dwelling and Sanitary appliances in connection therewith.

Drainage and Construction, Scavenging, Disposal of Sewage and Refuse.

Climate and Meteorology.

Infectious Diseases and Methods of Disinfection, Nature of Contagia, Immunity, Isolation, Quarantine, Vaccination.

Statistics in relation to Health.

Offensive Trades.

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In the latter half of the Winter Session, commencing in January, a Special Course for candidates for degrees and diplomas in Public Health is given on Sanitary Engineering, Law, and Statistics.

## MATERIA MEDICA AND PHARMACY.

*Lecturer* : J. COOLE KNEALE, M.B., Ch.B. ; M.P.S.

*Demonstrator* : F. R. GREENWOOD, M.B., Ch.B. ; M.D.  
(Lond.), M.R.C.S.

*Lecture Days*.—Tuesdays and Thursdays, at 2 p.m., during the Summer Session.

Materia Medica comprises the subjects of Pharmacognosy and Pharmacy.

Instruction in Materia Medica is given in—

- (a) A Course of eighteen Lectures.
- (b) Eighteen Practical Pharmacy Classes.
- (c) Thirteen Tutorial Classes.

### A.—Lectures on Materia Medica.

This Course includes the natural history, sensible and chemical properties and modes of administering remedies, ordinarily so-called. Such remedies consist of

- (a) Inorganic Substances.
- (b) Chemical Products.
- (c) Vegetable Substances.
- (d) Animal Substances.

### B.—Practical Classes.

Practical instruction is given in the following subjects, which cannot be satisfactorily taught in lectures, on Tuesdays and Thursdays, at 3 p.m. :—

- (1) Pharmacy, or the processes for obtaining the Pharmaceutical preparations of drugs.
- (2) Prescription Writing.
- (3) Dispensing, or the making up of medicines in forms suitable for administration in disease.

### C.—Tutorial Classes.

These will consist of a recapitulation of the Lectures and Practical Classes.

Students have access to the Materia Medica Museum, where facilities are afforded for the practical examination of specimens.

The Museum contains (1) a collection of the official and officinal drugs, organic and inorganic; (2) a collection of drugs from all sources for lecture purposes; (3) a collection of the whole of the galenical preparations of the British Pharmacopœia; (4) a complete set of apparatus used in Pharmaceutical work.

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## THERAPEUTICS.

*Professor:* ARTHUR FOXWELL, M.Sc.; M.A., M.D.  
(Cantab.), F.R.C.P.

*Assistant Lecturer in Pharmacology:* W. A. POTTS, M.D.;  
B.A. (Cantab.), M.D., C.M. (Edin.).

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*Lecture Days.*—Mondays and Thursdays, at 3 p.m., during the Winter Session.

### Syllabus.

Hygiene (personal and municipal).

Regulation of Habits.

Diet.

Rest.

Exercise (including Massage, Assisted Movements, and Gymnastics).

Bathing and Drinking Spas, their efficacy and its rationale; the choice of a Spa.

Climates; classification of; explanation of their action.

The chief Health Resorts described and compared.

Heat and Cold.

Electricity.

Operations.

Nursing.

Drugs; systematic Examination of the actions of various drugs in health on the tissues and systems of the body; consideration of their consequent uses in diseases. Modes of Administration; Doses, and the circumstances which modify these.

The art of Prescribing.

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## MIDWIFERY.

*Professor:* EDWARD MALINS, M.Sc.; M.D. (Edin.),  
F.R.C.P.

*Assistant:* C. E. PURSLOW, M.D. (Lond.), M.R.C.P.

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*Lecture Days.*—Mondays and Thursdays, at 4 p.m., during the Winter Session.

The course comprises—The Physiological Anatomy of the pelvis and organs of generation in the female. The Physiology and development of the ovum and foetus. The Physiology of pregnancy—the change effected by it; the diagnosis and the management of pregnancy. The Physiology and mechanism of labour. The conduct of normal labour. The Physiology and management of Child-bed. Obstetric Surgery. The Pathology of pregnancy. The Pathology of labour. The Diseases of Child-bed.

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## GYNÆCOLOGY.

*Professor:* JOHN W. TAYLOR, M.Sc.; M.D., F.R.C.S.

*Assistant:* C. E. PURSLOW, M.D. (Lond.), M.R.C.P.

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*Lecture Days.*—Tuesdays, Thursdays, and Fridays, at 3 o'clock, during the Summer Session.

### SYLLABUS.

#### General Anatomical Considerations:

The boundaries and supports of the Peritoneal Cavity.  
The Pelvic Diaphragm and Pelvic Floor.  
The Peritoneum.

#### The Anatomy of the External and Internal Genitalia:

Ovulation.  
The Retro-peritoneal Vessels.  
The Parovarium.

#### Normal Menstruation:

Amenorrhœa.  
Menorrhagia.  
Dysmenorrhœa.



Gynæcological Examination.

Diseases of the Vulva.

Injuries and Diseases of the Vaginal Entrance.

Diseases and Injuries of the Vagina.

Genital Atresia and Genital Doubling.

(Vaginal and Abdominal Section.)

Diseases of the Uterus :

Inflammatory Diseases of the Uterus.

Adenomatous Disease of the Uterus.

Displacements of the Uterus.

Inversion of the Uterus.

Myoma of the Uterus.

Cancer and Sarcoma of the Uterus.

Diseases of the Ovaries :

Inflammation of the Ovaries.

New Growths—

Ovarian Cystoma.

Ovarian Dermoids.

Ovarian Papilloma.

Ovarian Fibroma.

Ovarian Sarcoma and Carcinoma.

Parovarian Cysts.

Broad Ligament Tumours.

Diseases of the Fallopian Tubes :

Gonorrhœal Salpingitis.

Tubercular Salpingitis.

“Septic” Salpingitis.

New Growths of the Fallopian Tubes.

Extra Uterine Pregnancy and Intra-peritoneal Hæmatocele :

Ovarian Pregnancy.

Tubal Pregnancy :

Tubo-Abdominal Pregnancy.

Tubo-Ligamentary Pregnancy.

Tubo-Uterine Pregnancy.

*Demonstrations.*—The Assistant holds a class for instruction in Midwifery and Gynæcology for students preparing for their final examinations, on Tuesdays, throughout the Winter and Summer Sessions.

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## FORENSIC MEDICINE & TOXICOLOGY.

*Professor* : J. T. J. MORRISON, M.Sc. ; M.A., M.B., B.C.  
(Cantab.), F.R.C.S.

*Assistant* : R. A. LYSTER, M.B., Ch.B. ; D.P.H., B.Sc. (Lond.)

### Forensic Medicine.

*Lecture Days*.—Mondays at 3.0 p.m., and Thursdays and Fridays, at 4.0 p.m., during the Summer Session.

The Course treats of the several branches of Legal Medicine necessary to the medical practitioner for his guidance in Medico-Legal Inquiries, and for giving evidence in civil and criminal causes in Courts of Justice.

#### SYLLABUS.

Historical outline of the legal and social relations of the Medical profession in England. Rise of physicians, surgeons, and apothecaries, and their Corporations. The first Medical Act, 1511 ; the Apothecaries' Act, 1815 ; the Medical Acts of 1858 and 1886. General Medical Council. The Medical Register.

The scope of Forensic Medicine. Legal responsibilities and duties of medical men. The process of law before Coroner, Magistrate, and Judge. Medical Evidence.

The signs of death. Determination of the date of death. The causes of death, and particularly of sudden death. The post-mortem as a medico-legal inquiry. Exhumation.

Identification of the living and of the dead. Determination of age, sex, stature, and personal peculiarities.

Death by violent or unnatural causes—drowning, hanging, strangulation, suffocation, and smothering ; wounds and mechanical injuries ; extremes of temperature ; explosives ; electric shock ; lightning stroke ; starvation. Indications of accident, suicide, or homicide.

Wounds and other personal injuries ; question of accident or assault ; compensation claims in such cases.

Offences against chastity ; rape ; unnatural offences.

Criminal abortion. Live birth. Infanticide.

Malapraxis and malingering.

Lunacy certificates.

Life Assurance.

The Lectures will be supplemented by a practical Course of laboratory work on Mondays and Tuesdays, at 4.0 p.m.

SYLLABUS.

Human Blood: its microscopical, chemical, and spectroscopical features. Special characters of the blood of other mammals, birds, fishes, and amphibians.  
 Discrimination of stains resembling blood: iron salts, vegetable colors, aniline dyes.  
 Seminal stains. Gonorrhœal pus.  
 Hair of man and domestic animals.  
 Fibres: cotton, linen, wool, silk.  
 Marks made by vitriol and other mineral acids.  
 Demonstration of the Fœtus at various ages.  
 Finger-prints and footmarks.

Toxicology.

*Lecturer:* A. BOSTOCK HILL, M.Sc.; M.D., D.P.H. (Camb.), F.I.C.

*Assistant:* R. A. LYSTER, M.B., Ch.B.; D.P.H., B.Sc. (Lond.)

*Lecture Day.*—Mondays, at 2 o'clock, during the Summer Session.

This course comprises a discussion on the mode of action of poisons and the various circumstances influencing this; classification of poisons; methods of procedure in cases of poisoning; detection and estimation of poisons; symptoms; post-mortem appearances observed, and treatment to be adopted in cases of poisoning.

The lectures are supplemented by a Practical Course of laboratory work on Fridays, at 2.0 p.m.

MENTAL DISEASES.

*Professor:* E. B. WHITCOMBE, M.Sc., M.B., Ch.B.; M.R.C.S.

*Lecture Days:*—During the Summer Session, Tuesdays and Thursdays, at 2 p.m.

The Course will consist of an account of the various forms of Mental Disease, including their history, etiology, pathology, symptoms, and treatment. Illustrations of living examples, and pathological specimens will be utilised as far as possible. The medico-legal aspect of insanity will be included in the course.

## OPERATIVE SURGERY.

*Professor:* JORDAN LLOYD, M.Sc., M.D., Ch.B.; M.B.,  
M.S. (Durh.), F.R.C.S.

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A class of Operative Surgery, consisting of at least ten demonstrations, is held each Winter, after Christmas. All the chief operations in surgery are performed on the dead body by the Professor, and also by members of the Class.

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## OPHTHALMOLOGY.

*Professor:* PRIESTLEY SMITH, M.Sc.; M.B., Ch.B., F.R.C.S.

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*Lecture Days.*—Mondays and Wednesdays, at 4 p.m., during the Winter Session (January to March).

These lectures deal systematically with the nature and treatment of the principal diseases of the eye. The several parts of the subject are taken in the following order:—

1. Diseases of the Conjunctiva.
2. Diseases of the Cornea.
3. Diseases of the Uveal Tract: Iritis, Cyclitis, Choroiditis.
4. Injuries and Sympathetic Ophthalmia.
5. Glaucoma.
6. Cataract.
7. Diseases of the Retina, Optic Nerves, Tracts, and Centres.
8. Presbyopia and other Errors of Accommodation.
9. Hypermetropia and Astigmatism.
10. Myopia.
11. Strabismus and other disorders of the Motor Apparatus.
12. Diseases of the Eyelids, Tear-passages and Orbit.

In connection with this Course, Clinical demonstrations and practical instruction in the methods of examining the eye, are given in the Eye Department of the Queen's Hospital.

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# FACULTY OF MEDICINE. 1904-1905.

## FIRST YEAR TIME TABLE.

| SUBJECTS.                         | Mon.  | Tu.  | Wed.  | Th.  | Fri.  | Sat. |
|-----------------------------------|-------|------|-------|------|-------|------|
| <b>WINTER SESSION.</b>            |       |      |       |      |       |      |
| Chemistry.....                    | 9.30  | 9.30 | 9.30  | 9.30 | ..    | ..   |
| „ Practical .....                 | 2.0   | ..   | 2.0   | ..   | ..    | ..   |
| Anatomy .....                     | 10.30 | ..   | 10.30 | ..   | ..    | ..   |
| Practical Anatomy .....           | ..    | ..   | Daily |      |       |      |
| Physics .....                     | 11.30 | ..   | 11.30 | ..   | 11.30 | ..   |
| Practical .....                   | ..    | ..   | ..    | ..   | 2.30  | ..   |
| <b>SUMMER SESSION.</b>            |       |      |       |      |       |      |
| Chemistry.....                    | 9.30  | ..   | 9.30  | ..   | 9.30  | ..   |
| Practical Chemistry .....         | 2.0   | 2.0  | ..    | 2.0  | ..    | 9.30 |
| Physiology—Practical Histology .. | 11.0  | 11.0 | 11.0  | 11.0 | 11.0  | ..   |
| Physics .....                     | ..    | 9.30 | ..    | 9.30 | ..    | ..   |
| „ Practical .....                 | ..    | ..   | ..    | ..   | 2.30  | ..   |

## SECOND YEAR TIME TABLE.

|                                  |      |       |        |       |       |    |
|----------------------------------|------|-------|--------|-------|-------|----|
| <b>WINTER SESSION.</b>           |      |       |        |       |       |    |
| Anatomy .....                    | 12.0 | 12.0  | 12.0   | 12.0  | ..    | .. |
| Embryology.....                  | ..   | 3.0   | ..     | ..    | ..    | .. |
| Practical Anatomy .....          | ..   | ..    | Daily. |       |       |    |
| Physiology .....                 | ..   | 10.30 | 10.30  | 10.30 | 10.30 | .. |
| „ Experimental (Oct. to Dec.) .. | ..   | 2.30  | ..     | ..    | ..    | .. |
| „ Chemical (Jan. to March) ..    | ..   | 2.30  | ..     | ..    | ..    | .. |
| Comparative Anatomy:—            |      |       |        |       |       |    |
| Lectures .....                   | 2.0  | ..    | 2.0    | ..    | ..    | .. |
| Practical .....                  | 3.0  | ..    | 3.0    | ..    | ..    | .. |
| <b>SUMMER SESSION.</b>           |      |       |        |       |       |    |
| Anatomy .....                    | 12.0 | ..    | 12.0   | ..    | 12.0  | .. |
| „ Practical.....                 | ..   | ..    | Daily. |       |       |    |
| Physiology .....                 | ..   | 3.0   | ..     | 3.0   | ..    | .. |

| THIRD YEAR TIME TABLE.              |                 |     |      |     |      |      |
|-------------------------------------|-----------------|-----|------|-----|------|------|
| SUBJECTS.                           | Mon.            | Tu. | Wed. | Th. | Fri. | Sat. |
| WINTER SESSION.                     |                 |     |      |     |      |      |
| Surgery .....                       | ..              | 4.0 | 4.0  | ..  | 4.0  | ..   |
| Pathology .....                     | 2.0             | 2.0 | 2.0  | 2.0 | 2.0  | ..   |
| „ Practical .....                   | 3.0             | ..  | ..   | 3.0 | ..   | ..   |
| SUMMER SESSION.                     |                 |     |      |     |      |      |
| Practical Pathology .....           | 2.0             | ..  | ..   | ..  | 2.0  | ..   |
| Materia Medica .....                | ..              | 2.0 | ..   | 2.0 | ..   | ..   |
| Practical Pharmacy .....            | ..              | 3.0 | ..   | 3.0 | ..   | ..   |
| FOURTH YEAR TIME TABLE.             |                 |     |      |     |      |      |
| WINTER SESSION.                     |                 |     |      |     |      |      |
| Medicine .....                      | ..              | 3.0 | 3.0  | ..  | 3.0  | ..   |
| Surgery .....                       | ..              | 4.0 | 4.0  | ..  | 4.0  | ..   |
| Public Health.....                  | 3.0             | ..  | ..   | ..  | ..   | ..   |
| Midwifery .....                     | 4.0             | ..  | ..   | 4.0 | ..   | ..   |
| SUMMER SESSION.                     |                 |     |      |     |      |      |
| Gynaecology .....                   | ..              | 3.0 | ..   | 3.0 | 3.0  | ..   |
| Forensic Medicine.....              | 3.0             | ..  | ..   | 4.0 | 4.0  | ..   |
| „ Practical.....                    | 4.0             | 4.0 | ..   | ..  | ..   | ..   |
| Toxicology .....                    | 2.0             | ..  | ..   | ..  | ..   | ..   |
| „ Practical.....                    | ..              | ..  | ..   | ..  | 2.0  | ..   |
| Mental Diseases .....               | ..              | 2.0 | ..   | 2.0 | ..   | ..   |
| FIFTH YEAR TIME TABLE.              |                 |     |      |     |      |      |
| WINTER SESSION.                     |                 |     |      |     |      |      |
| Medicine .....                      | ..              | 3.0 | 3.0  | ..  | 3.0  | ..   |
| Therapeutics .....                  | 3.0             | ..  | ..   | 3.0 | ..   | ..   |
| Surg. and Med. Anat. (Oct. to Dec.) | 4.0             | ..  | 4.0  | ..  | 4.0  | ..   |
| Ophthalmology (Jan. to March) ..    | 4.0             | ..  | 4.0  | ..  | ..   | ..   |
| Operative Surgery .....             | After Christmas |     |      |     |      |      |

All Students are requested to take notice that they are expected to attend **at least two-thirds** of the lectures of each course, and also the class examinations, and that the Schedules of those who do not observe these regulations will not be signed.

## REGULATIONS FOR DEGREE AND DIPLOMA IN PUBLIC HEALTH.

### General Conditions.

1.—All Candidates must be registered under the Medical Act.

2.—The Examinations will be held in the months of January and June, and will consist of two parts. No Candidate will be allowed to pass Part II. until he has passed Part I.

3.—Candidates may enter for Parts I. and II. separately or at the same time.

4.—The Examination in each part will be written, oral and practical.

5.—Candidates intending to present themselves for either part of the Examination must give notice in writing to the Registrar of the University, on the date prescribed in the Calendar.

6.—The Fee for each part of the Examination is £5.

### Conditions of Admission to the Examinations.

1.—For Candidates registered under the Medical Act on or *before* the 1st of January, 1890.

Candidates so registered will be allowed to sit for examination on producing certificate of registration.

2.—For Candidates registered under the Medical Act *after* the 1st of January, 1890.

Candidates will be admitted to examination in Part I. on producing evidence :—

(1) Of being at least 23 years of age, and of having been possessed of a registrable qualification in Medicine, Surgery and Midwifery, for a period of twelve months.

(2) Of having received, after obtaining a registrable Qualification, during six months, practical instruction in Hygienic Chemistry, Bacteriology, and the Pathology of the Diseases of Animals transmissible to Man.

NOTE.—Graduates in Medicine of the University of Birmingham, or past students who have taken out the whole of their Curriculum in the Birmingham Medical School may attend the required instruction in Chemistry and Bacteriology either in this or in some other University, University College, or Medical School in Great Britain or Ireland. (Officers of R.A.M.C., see page 401.)

Other candidates must attend the special courses of instruction in Chemistry and Bacteriology required for the Diploma in the University of Birmingham.

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Candidates will be admitted to examination in Part II. on producing evidence :—

(3) That, after obtaining a registrable Qualification, they have, during six months (of which at least three months shall be distinct and separate from the period of laboratory instruction required under *Rule 2*) been diligently engaged in acquiring a practical knowledge of the duties, routine and special, of Public Health Administration, under the supervision of

(a) In England and Wales, the Medical Officer of Health of a County or of a single Sanitary District having a population of not less than 50,000, or a Medical Officer of Health devoting his whole time to Public Health work ; or

(b) In Scotland, a Medical Officer of Health of a County or Counties, or of one or more Sanitary Districts having a population of not less than 30,000 ; or

(c) In Ireland, a Medical Superintendent Officer of Health of a District or Districts having a population of not less than 30,000 ; or

(d) A Medical Officer of Health who is also a Teacher in the Department of Public Health of a recognised Medical School.



\* \* The certificate of an Assistant Medical Officer of Health of a County or of a single Sanitary District having a population of not less than 50,000 may be accepted as evidence under *Rule 3*, provided the Medical Officer of Health of the County or District in question permits the Assistant Officer to give the necessary instruction and to issue certificates.

Provided that the period of six months may be reduced to a period of *three* months (which shall be distinct and separate from the period of Laboratory instruction required under *Rule 2*), in the case of any Candidate who produces evidence that, after obtaining a registrable qualification, he has during three months attended a course or courses of instruction in sanitary law, sanitary engineering, vital statistics, and other subjects bearing on Public Health Administration, given by a Teacher in the Department of Public Health of a recognized Medical School.

(4) That, after obtaining a registrable Qualification, he has attended during three months the practice of a Hospital for Infectious Diseases recognised by the University, at which opportunities are afforded for the study of Methods of Administration.

Officers of the Royal Army Medical Corps who have studied Chemistry and Bacteriology at the Staff College, and pursued the further course of study approved by the General Medical Council in December, 1902, will be admitted to the Examination for the Diploma in Public Health, whether they have previously been students of the Birmingham School or not.

### DEGREE IN PUBLIC HEALTH.

Graduates in Medicine of this University may become candidates for the degree of Bachelor of Science in Public Health, by conforming to all the requirements laid down for candidates for the Diploma in Public Health, and, in addition, they must have attended a three months' course of \*Geology in the University.

Past students of the Birmingham School of Medicine who have taken out their entire curriculum, or at least

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\* The Course in Geology is delivered during the Winter Term only.

three years of the same therein, and have obtained a degree in Medicine in any British University are eligible for the Bachelorship in Science in Public Health on the same terms as graduates in Medicine of the University of Birmingham.

The Examination for the Degree is not the same as that for the Diploma, and a considerably higher standard of knowledge will be exacted at the former.

The whole of the instruction, with the exception of out-door Sanitary work, required for the Degree and Diploma in Public Health can be taken out in the University.

FEES :—

|                             |    |   |   |
|-----------------------------|----|---|---|
| Sanitary Chemistry .....    | £8 | 8 | 0 |
| Caution Money, deposit      | 1  | 0 | 0 |
| Bacteriology .....          | 4  | 4 | 0 |
| Incidental Fee .....        | 1  | 1 | 0 |
| Geology .....               | 2  | 2 | 0 |
| Public Health Lectures..... | 2  | 2 | 0 |

### Syllabus for the Examinations.

#### PART I.

- 1.—Physics in their application to Health, and with reference to Ventilation and Heating. Water Supply and Sewerage.
- 2.—Chemistry in its relation to Air, Water, Food, Soil, and Sewage.
- 3.—Microscopical Examinations of Air, Water, Food, Articles of Clothing, Parasites, &c.
- 4.—Bacteriology in relation to Sanitary Work.

#### PART II.

- 1.—The Origin, Pathology, and Prevention of Disease; with special reference to Infectious Disease.
- 2.—Effects of Unwholesome Air, Water, and Food.
- 3.—Diseases of Animals in relation to the Health of Man.
- 4.—Influence of Occupation—Unhealthy Trades.
- 5.—Influence of Climate.
- 6.—Sanitary Administration in relation to requirements of Houses and other buildings, Sanitary Engineering.
- 7.—Construction, Arrangement, and Management of Hospitals.
- 8.—Statistics in relation to Health.
- 9.—Sanitary Law, including Bye-laws, Orders and Regulations.
- 10.—Duties of Sanitary Officers.

## SCHOLARSHIPS AND PRIZES.

### Ingleby Scholarship.

The Ingleby Scholarship (value £10), founded in memory of the late Dr. Ingleby, formerly Professor of Midwifery in the Queen's College, will be offered annually to the candidate who obtains at the June Final Examination the highest marks in the subjects of Midwifery and Gynæcology.

### Sands-Cox Scholarship.

The Sands-Cox Scholarship, of the value of £42, is awarded to the Candidate amongst those entering as students of the Faculty of Medicine in the month of October, who shall have obtained the highest marks at the Matriculation Examination in the previous month of June.

Provide that

- (a) No Candidate shall be elected whose age exceeds nineteen on the first day of the examination.
- (b) No Candidate shall be elected who shall not have attained to a position in the first class, and satisfied the Examiners that he has shown sufficient merit for the award.
- (c) The payment shall be made in two annual instalments, and in the form of remission of fees.
- (d) The second instalment shall not be paid until the scholar presents a certificate from the Dean, showing that his first year's work has been satisfactory.

### Queen's Scholarships.

Queen's Scholarships of the value of £10 10s. each are allotted annually, on the recommendation of the Examiners, to the students taking the first place at the second, third, fourth, and final University Examinations respectively.

### Sydenham Scholarships.

1. One or more Scholarships of the value of £42 each will be offered annually.

2. The Scholar or Scholars will be elected by vote of the Council on the recommendation of the Faculty of Medicine.

3. The Scholarships are limited to the orphan sons of legally qualified Medical Men on entrance as first year students of the University.

4. The orphan sons of former students of the Birmingham Medical School will have priority of election.

5. No Sydenham Scholar will be elected whose age exceeds 23 years on the day of election.

6. The Scholarship may be held for three years, subject to good behaviour ; and one-third of the Scholarship will be paid annually.

7. All applications for a Sydenham Scholarship should be addressed to the Dean of the Medical Faculty on or before the 3rd of October in each year, and each candidate is required to furnish such evidence of eligibility as he considers necessary.

### Russell Memorial Prize.

This prize was founded by students of the Queen's College in memory of the late Dr. James Russell, formerly Honorary Physician to the General Hospital. It is a prize of books awarded annually to the student who, not being of more than six years' standing as a student of the School of Medicine of the University, shall pass the best examination in the subject of nervous diseases.

### The Walter Myers Travelling Studentship.

In memory of his son, Dr. Walter Myers, who died of yellow fever when making an investigation of that disease for the Liverpool School of Tropical Medicine, his father, Mr. George Myers, of Birmingham, has founded and endowed a travelling studentship in the University of Birmingham. Holders of this studentship, which will be

awarded early in October in each year, must possess the degrees in medicine and surgery of the University of Birmingham. They must also possess the degree of B.Sc., which must have been obtained either at the University of Birmingham or London, or at either of the Universities of Oxford or Cambridge, should such degree be obtainable at either of those Universities. They must study for a year at one of certain Universities in Germany, and any papers that they may publish must appear under the name of the Walter Myers Studentship. The studentship, which will be of the value of £150, will only be awarded should a candidate of sufficient promise present himself. The subjects in which the student may pursue investigations are pathology or clinical medicine, combined with pathological research. The studentship may be prolonged over a second year, but at a diminished stipend. The Deed of Foundation of the studentship is printed in an Appendix, from which further particulars may be obtained.

Applications for this studentship must be sent in to the Dean of the Medical Faculty on or before October 1st.

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### **William Richards Memorial Prize.**

This prize, value £3 3s., which belongs to and is adjudicated upon by the University Medical Society, is awarded to the student member of the society who shall send in the best paper during the year, such paper to be read at a meeting of the society.

### **Entrance Scholarship for Dental Students.**

1. One will be offered annually of the value of £37 10s.
2. It will be awarded to the student who, entering for the Dental Degree of the University in October, or having entered not earlier than the previous April, shall pass the best examination in the subjects studied during his apprenticeship.
3. Candidates must be under the age of twenty-one years.
4. Application for admission must be sent to the Dean on or before October 12th.

## MEDICAL FEES.

### I.—Membership Fees.

Composition Students on entering pay a Membership Fee of £3 3s., which admits them to the University for five years. At the expiration of this period they may, at the discretion of the Dean, be called upon to pay the membership fees demanded from occasional students.

Occasional or Class Students are required to pay £1 1s. for each Winter Session and 10s. 6d. for each Summer Session during which they are in attendance at the University.

### II.—Composition Fee.

The Composition Fee, £85, is inclusive and payable in four annual instalments, viz. :—£25, £25, £15, and £20 at the commencement of each year. This fee covers all the courses necessary for the Degrees of this and other Universities, and the ordinary qualifications of the Licensing Boards. It does not include, however, courses for Public Health Diplomas, nor those for the Preliminary Scientific Examination of the University of London, nor the additional courses required for the Fellowship of the Royal College of Surgeons, and other such higher diplomas and degrees. It is not a *perpetual* fee, and students allowing their courses to fall into arrear, without having previously obtained the written permission of the Dean to do so, are liable to the forfeiture of the unused portion of their Composition Fee.

### III.—Class Fees.

Students wishing to do so can pay for each class as they take it, the following table showing the fees for each course :—

|                                     |    |    |    |
|-------------------------------------|----|----|----|
| Anatomy and Practical Anatomy (each | £  | s. | d. |
| Winter) .....                       | 11 | 11 | 0  |
| Anatomy and Practical Anatomy (one  |    |    |    |
| Summer) .....                       | 3  | 3  | 0  |
| Physiology .....                    | 6  | 6  | 0  |
| Physiology, Practical .....         | 4  | 4  | 0  |
| Medicine .....                      | 6  | 6  | 0  |
| Surgery... ..                       | 6  | 6  | 0  |

|                                        | £ | s. | d. |
|----------------------------------------|---|----|----|
| Chemistry.....                         | 4 | 4  | 0  |
| Chemistry, Practical .....             | 3 | 3  | 0  |
| Comparative Anatomy.....               | 5 | 5  | 0  |
| Physics.....                           | 5 | 5  | 0  |
| Materia Medica and Pharmacy.....       | 2 | 2  | 0  |
| Pathology.....                         | 4 | 4  | 0  |
| „ Practical .....                      | 4 | 4  | 0  |
| Therapeutics.....                      | 4 | 4  | 0  |
| Forensic Medicine and Toxicology ..... | 4 | 4  | 0  |
| Public Health .....                    | 3 | 3  | 0  |
| Operative Surgery .....                | 2 | 2  | 0  |
| Lunacy and Mental Diseases.....        | 2 | 2  | 0  |
| Ophthalmology .....                    | 1 | 1  | 0  |
| Applied Anatomy .....                  | 1 | 1  | 0  |
| Midwifery .....                        | 4 | 4  | 0  |
| Gynæcology .....                       | 2 | 2  | 0  |

NOTE.—Composition Students desiring to repeat any course will be required to pay a half fee for such course. In the case of Practical Anatomy this will be £3 3s. The fee for three months Practical Anatomy in the Winter is £2 2s. For repeating the Summer course in Anatomy the fee is £1 11s. 6d.

#### IV.—Incidental Fees.

Composition students taking courses for the first time are not required to pay these fees. But any Composition Student desiring to repeat a practical course will have to pay the incidental fee as well as the half-fee for attendance. Class Fee Students are required to pay the incidental fee as well as the class fee.

|                                                  | £ | s. | d. |
|--------------------------------------------------|---|----|----|
| Dissecting Room (each Winter) .....              | 1 | 11 | 6  |
| „ „ (each Summer) .....                          | 0 | 10 | 6  |
| Practical Physiology .....                       | 2 | 2  | 0  |
| „ Pathology .....                                | 1 | 11 | 6  |
| „ Pharmacy .....                                 | 0 | 10 | 6  |
| Operative Surgery .....                          | 0 | 10 | 6  |
| Practical Forensic Medicine and Toxicology ..... | 0 | 10 | 6  |

NOTE.—All these sums are payable to the Secretary.

### V.—Microscopes.

It is essential that every well-educated medical man should possess his own microscope. Students will, therefore, be required to provide themselves with a satisfactory instrument before attending the course of Practical Physiology. Before attending the Practical Course in Pathology, they will be required to add a higher power lens and such other accessories as are necessary for the study of Bacteriology. Students can provide themselves with instruments, but in that case each instrument will have to be submitted to the Professor of Physiology, and its further accessories to the Professor of Pathology, and no student will be permitted to use in class an instrument which has not been approved by the Professor. The instrument recommended by the Faculty is the Delepine pattern microscope, manufactured by Messrs. Swift and Son. Students desiring to do so, can procure this instrument through the University by paying the sums set down below, in the Dean's office, when paying their other fees. All students, not already possessing a suitable instrument are advised to follow this course since they will obtain a substantial reduction in price by so doing. Moreover, all instruments purchased in this way will have been carefully examined by the Professors of Physiology and Pathology, so that the purchaser will be certain that he is obtaining a first-class microscope. The price of the microscope with the parts necessary for the Course of Practical Physiology will be £8 11s. 0d., and this sum must be paid at the commencement of the first summer. The accessories necessary for the Course of Practical Pathology will cost in addition, £5 6s. 6d., and this sum will have to be paid at the commencement of the third winter. These sums include the charge for engraving the student's name on the various parts of the instrument.



## VI. Examination Fees.

The fees payable before a student is admitted to any of the examinations are set down below. Students failing at any examination will be called upon to pay a half-fee when next presenting themselves for the same examination.

|                                             | £  | s. | d. |
|---------------------------------------------|----|----|----|
| Matriculation .....                         | 2  | 0  | 0  |
| First Examination .....                     | 4  | 0  | 0  |
| Second       ,, .....                       | 4  | 0  | 0  |
| Third         ,, .....                      | 2  | 0  | 0  |
| Fourth       ,, .....                       | 2  | 0  | 0  |
| Final         ,,       for M.B., Ch.B. .... | 4  | 0  | 0  |
| M.D., or Ch.M. ....                         | 10 | 0  | 0  |

For the convenience of those desiring to ascertain the total cost of obtaining the degrees of Bachelor of Medicine and Bachelor of Surgery, the following table has been drawn up. It presumes that the student enters by the Composition system and makes no allowance for failures at examinations. No allowance is made either for the cost of books, instruments, etc., or for private tuition, should such be required.

|                                             | £  | s. | d. | £           | s.        | d.       |
|---------------------------------------------|----|----|----|-------------|-----------|----------|
| MATRICULATION   ...   ...   ...   ...   ... | 2  | 0  | 0  |             |           |          |
|                                             |    |    |    | 2           | 0         | 0        |
| FIRST YEAR.—Membership Fee   ...   ...      | 3  | 3  | 0  |             |           |          |
| First Composition   ...   ...               | 25 | 0  | 0  |             |           |          |
| First Examination   ...   ...               | 4  | 0  | 0  |             |           |          |
|                                             |    |    |    | 32          | 3         | 0        |
| SECOND YEAR.—Second Composition ... ..      | 25 | 0  | 0  |             |           |          |
| First Hospital Composition   ... ..         | 12 | 0  | 0  |             |           |          |
| Second Examination   ...   ...              | 4  | 0  | 0  |             |           |          |
|                                             |    |    |    | 41          | 0         | 0        |
| THIRD YEAR.—Third Composition   ... ..      | 15 | 0  | 0  |             |           |          |
| Second Hospital Composition   ... ..        | 15 | 0  | 0  |             |           |          |
| Third Examination   ...   ...               | 2  | 0  | 0  |             |           |          |
|                                             |    |    |    | 32          | 0         | 0        |
| FOURTH YEAR.—Fourth Composition ... ..      | 20 | 0  | 0  |             |           |          |
| Third Hospital Composition   ... ..         | 15 | 0  | 0  |             |           |          |
| Fourth Examination   ...   ...              | 2  | 0  | 0  |             |           |          |
|                                             |    |    |    | 37          | 0         | 0        |
| FIFTH YEAR.—Vaccination   ...   ...   ...   | 1  | 11 | 6  |             |           |          |
| Fever Hospital   ...   ...   ...            | 2  | 2  | 0  |             |           |          |
| Asylum   ...   ...   ...                    | 3  | 3  | 0  |             |           |          |
| Final Examination   ...   ...               | 4  | 0  | 0  |             |           |          |
|                                             |    |    |    | 10          | 16        | 6        |
|                                             |    |    |    | <u>£154</u> | <u>19</u> | <u>6</u> |

NOTE.—All fees (except those for Hospital) are payable to the Secretary. Cheques should be drawn in favour of Mr. Geo. H. Morley.

Before attending any class students must obtain a card from the Dean, which they must *at once* present to the Secretary, paying at the same time any fees which may be due. Students are however particularly requested to notice that the card which they obtain from the Dean must be lodged at once with the Secretary whether any fees are payable at the same time or not. Until this is done no credit will be given for attendance upon any course.

Students, whether composition or occasional, who have taken out all the classes for which they have paid, must understand that they have no further *right* to use the University Class-rooms, or Library, or the Common-room. But all Composition Students can obtain permission from the Dean to attend Tutorial Classes, or to use the Museums and Library. The Dean will issue cards to such students each Session, and the cards may be required to be produced at any time. It must be distinctly understood that such cards are held subject to the good conduct of the student, and that the Dean may at any time cancel any student's card.

Occasional students can receive similar cards on paying the terminal Membership Fee.

Students and others desiring information on any subject connected with the Medical Curriculum can obtain the same by applying at the Dean's Office in the University Medical Buildings.

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# INFORMATION CONCERNING HOSPITAL WORK.

## THE GENERAL HOSPITAL.

### *Honorary Consulting Physicians—*

SIR WALTER FOSTER, M.D., D.C.L., LL.D., F.R.C.P., M.P.  
SIR WILLOUGHBY F. WADE, M.D., F.R.C.P.  
EDWIN RICKARDS, M.A., M.B. (Oxon.), F.R.C.P.

### *Consulting Obstetric Officer—*

EDWARD MALINS, M.D., F.R.C.S.

### *Honorary Physicians—*

ROBERT SAUNDEY, M.D., LL.D., M.Sc., F.R.C.P.  
ROBERT M. SIMON, M.D. (Cantab.), F.R.C.P.  
T. STACEY WILSON, M.D., M.R.C.P.  
T. SYDNEY SHORT, M.D., M.R.C.P.

### *Honorary Surgeons—*

THOMAS F. CHAVASSE, M.D., F.R.C.S.  
GILBERT BARLING, M.B., B.S., F.R.C.S.  
WILLIAM F. HASLAM, F.R.C.S.  
GEORGE HEATON, M.A., M.B., B.Ch. (Oxon), F.R.C.S.

### *Honorary Obstetric Officer—*

THOMAS WILSON, M.D., Ch.M.

### *Honorary Ophthalmic Surgeon—*

D. C. LLOYD-OWEN, M.D., F.R.C.S.I.

### *Honorary Aural Surgeon and Laryngologist—*

F. W. FOXCROFT, M.D., C.M.

### *Assistant Physicians—*

JAMES W. RUSSELL, M.A., M.D., M.R.C.P.  
(Vacant).

### *Assistant Surgeons—*

ALBERT LUCAS, F.R.C.S.  
LEONARD P. GAMGEE, F.R.C.S.

### *Assistant Obstetric Officer—*

JOHN T. HEWETSON, M.D., Ch.M., F.R.C.S.

### *Casualty Assistant Physicians—*

S. H. PERRY, M.D., M.R.C.P.  
A. DOUGLAS HEATH, M.D., M.R.C.P.

### *Anæsthetists—*

SYDNEY HAYNES, M.D.  
W. J. MCCARDIE, B.A., M.B., B.C. (Cantab.)

*Surgical Casualty Officers—*

F. VICTOR MILWARD, F.R.C.S.

FRANK BARNES, M.B., B.S., F.R.C.S.

*Surgical Photographer and Radiographer—*

J. HALL EDWARDS, M.R.C.S.

*Dental Surgeon—*

A. T. HILDER, L.D.S.

The Medical and Surgical staff visit the Wards and give Clinical Instruction every morning at 10 a.m.

Clinical Lectures on Medicine, Surgery, and Gynaecology are delivered every week during the Winter and Summer Sessions.

Special Ward Classes are held by the Physicians and Surgeons for Senior Students, Surgical at 9.30 a.m., Medical at 10.30 a.m.

Surgical operations are performed in the theatres each week-day morning.

Tutorial Classes are held during both Sessions—Medical by Dr. Russell and Dr. Perry, Surgical by Mr. Lucas and Mr. Gamgee, and Gynaecological by Mr. Hewetson.

Students attend the daily visits of the Staff to the Wards and Out-patient rooms.

Instruction is given at fixed times by Dr. Foxcroft in the Ear and Throat Department, and in the Dental Department by Mr. Hilder.

Post-mortem examinations are made daily by the Pathologist at 9.30 a.m., and a class in Pathology is held every Saturday at 11 a.m.

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# THE QUEEN'S HOSPITAL, BIRMINGHAM.

## *Consulting Physicians—*

SIR JAMES SAWYER, KNT., M.D., F.R.C.P., F.R.S.E.  
 CORNELIUS W. SUCKLING, M.D., M.R.C.P.

## *Consulting Surgeons—*

FURNEAUX JORDAN, F.R.C.S.  
 J. ST. S. WILDERS, M.R.C.S.  
 FRANK MARSH, F.R.C.S.

## *Physicians—*

ALFRED H. CARTER, M.D., F.R.C.P.  
 ARTHUR FOXWELL, M.A., M.D., F.R.C.P.  
 O. J. KAUFFMANN, M.D., M.R.C.P.

## *Surgeons—*

BENNETT MAY, B.S., F.R.C.S.  
 JORDAN LLOYD, M.D., M.S., F.R.C.S.  
 J. T. J. MORRISON, M.A., B.C., F.R.C.S.

## *Ophthalmic Surgeon—*

PRIESTLEY SMITH, F.R.C.S.

## *Obstetric Officer—*

C. E. PURSLOW, M.D., M.R.C.P.

## *Physicians for Out-Patients—*

J. DOUGLAS STANLEY, M.D., M.R.C.P.  
 JOSEPH GEORGE EMANUEL, M.D., M.R.C.P.

## *Surgeons for Out-Patients—*

C. A. LEEDHAM-GREEN, Ch.M., F.R.C.S.  
 W. BILLINGTON, M.B., F.R.C.S.  
 A. W. NUTHALL, M.B., Ch.B., F.R.C.S.

## *Assistant Ophthalmic Surgeon—*

WILFRID ALLPORT, M.B., B.S.

## *Pathologist—*

A. S. BARNES, M.D., M.R.C.P.

**Days of Attendance for Out-Patients (9 a.m.)**

*Monday.*—Dr. Kauffmann, Mr. May, and Dr. Purslow.

*Tuesday.*—Dr. Stanley, Mr. Lloyd, Mr. Priestley Smith, and Mr. Allport.

*Wednesday.*—Dr. Foxwell, Dr. Emanuel and Mr. Morrison.

*Thursday.*—Dr. Stanley, Dr. Purslow, and Mr. Leedham-Green.

*Friday.*—Dr. Emanuel, Mr. Priestley Smith, Mr. Allport, and Mr. Billington.

Casualty patients are attended on Tuesday and Friday by Mr. Leedham-Green ; Wednesday and Saturday by Mr. Billington ; and on Monday and Thursday by Mr. Nuthall.

**Clinical Instruction.**

Throughout the academical year Clinical Instruction is given daily in the wards by one of the Physicians, Surgeons, or Special Officers, at 9.30 a.m. Practice may be seen daily in the Medical and Surgical Wards and Out-patient rooms. Surgical operations are performed on Wednesday, Thursday, Friday, and Saturday mornings.

The Obstetric Department is under the charge of Dr. PURSLOW, and the Ophthalmic under Mr. PRIESTLEY SMITH. Demonstrations on recent specimens of Morbid Anatomy are given by Dr. BARNES at 10 on Saturday mornings.

Tutorial Classes are held throughout the Session—Medical by Dr. DOUGLAS STANLEY and Dr. EMANUEL ; Surgical by Mr. LEEDHAM-GREEN, Mr. BILLINGTON and Mr. NUTHALL.

**THE GENERAL AND QUEEN'S HOSPITALS.  
BIRMINGHAM.**

The Practices of these Hospitals are amalgamated for the purpose of Clinical Instruction which is carried on under the direction of the Birmingham Clinical Board, the Secretary to which will sign all Schedules.

The Hospitals have a total of more than of 400 beds. 6,000 In-patients and 80,000 Out-patients are treated annually.

The Instruction given at the Hospitals qualifies for the Examinations of all British Universities and Licensing Bodies.

### Registration of Hospital Students.

Students must register with the Secretary of the Clinical Board at the commencement of their second year, and of every succeeding year. Due notice will be given at the University and at the Hospitals of the days and hours of registration.

Students are, on first entering for their Hospital work, allocated in equal numbers to the General and the Queen's Hospitals respectively.

A student remains for one year at one Hospital, and in the next year passes to the other Hospital, and so on until his fifth year, when he may attend whatever classes he chooses at either Hospital (subject to the Regulations, p. 420).

### Appointments open to Past Students.

#### At the GENERAL HOSPITAL.

- One Resident Medical Officer—Salary £70 a year.
- One Resident Surgical Officer—Salary £100 a year.
- One Resident Pathologist—Salary £100 a year.
- Two non-resident Casualty Assistant Physicians—Salary £50 a year.
- Two non-resident Surgical Casualty Officers—Salary £50 a year.
- Two non-resident Anæsthetists—Salary £50 a year.
- Three House Physicians, tenable for six months, with salary at the rate of £50 a year.
- Four House Surgeons—office tenable for six months, with salary at the rate of £50 a year.
- One House Surgeon to the Special Departments, tenable for six months, salary at the rate of £50 a year.
- One Resident Medical Officer at the Jaffray Hospital—Salary £150 a year.
- One Resident Assistant at the Jaffray Hospital (post vacant early in April, July, October and January—tenable for three months).

## At the QUEEN'S HOSPITAL.

Three House Physicians (posts vacant in February, May and November, tenable for twelve months, at a salary of £50).

Three House Surgeons (posts vacant in February, May and November, tenable for twelve months, at a salary of £50).

One Obstetric and Ophthalmic House Surgeon tenable for six months. Salary at the rate of £40 a year.

One Resident Dresser (post vacant on the first day of January, April, July, and October, tenable for three months). Candidates for this appointment need not be qualified. (See also page 417.)

## At the CITY WORKHOUSE AND WORKHOUSE INFIRMARY.

Five Resident Medical Officers.

## At the BIRMINGHAM GENERAL AND BRANCH DISPENSARIES.

Eight Resident Surgeons.

## At the BIRMINGHAM LUNATIC ASYLUMS.

Five Assistant Medical Officers.

## At the CITY FEVER HOSPITALS.

Three Assistant Medical Officers.

## At the CHILDREN'S HOSPITAL.

One Resident Surgical Officer.

One Resident Medical Officer.

## At the BIRMINGHAM AND MIDLAND EYE HOSPITAL.

Three Resident Surgeons.

## At the ORTHOPEDIC AND SPINAL HOSPITAL.

Four Clinical Assistants (non-resident).

## At the EAR AND THROAT HOSPITAL.

One House Surgeon, with salary at the rate of £70 per annum.

Four Clinical Assistants (non resident).

There are also four non-resident Poor Law Appointments in the gift of the Board of Guardians.



Besides the above-mentioned positions in Institutions in the City of Birmingham, there are numerous resident appointments in the Hospitals in the immediate vicinity which are open to the students of the Birmingham Medical School, such as the West Bromwich Hospital, one Senior House Surgeon (salary £100 per annum), one Junior House Surgeon (salary £50 per annum); the Guest Hospital, Dudley; the Warneford Hospital, Leamington; the Kidderminster Infirmary; the Worcester General Infirmary; and the Walsall and District Hospital. Most of the above positions are at the present time occupied by past students of the School.

### Regulations

*For the appointments of Resident Clinical Assistant at the Jaffray Hospital and Resident Dresser at the Queen's Hospital.*

These posts are awarded by examination.

The Examinations are only open to students taking out the whole of their clinical course at the School of Medicine of the University of Birmingham.

The Resident Dresser at Queen's Hospital is at liberty to attend lectures at the University in the afternoons. Students before competing must be certified for at least three months' in-patient clerking and three months' in-patient dressing, but they must not have exceeded the limit of the five years' curriculum. The possession of a recently-obtained qualification is not a bar to the holding of either of these appointments.

### Clinical Prizes.

*The following Prizes are given annually by the Clinical Board:—*

|                                                        |     |     |        |
|--------------------------------------------------------|-----|-----|--------|
| Senior Medical Prize, for students <i>during</i> their |     |     |        |
| “final” year, to the value of                          | ... | ... | £5 5s. |
| Senior Surgical Prize, ditto                           | ... | ... | £5 5s. |
| Junior Medical Prize, for students <i>before</i> the   |     |     |        |
| commencement of their “final” year, to the             |     |     |        |
| value of                                               | ... | ... | £3 3s. |
| Junior Surgical Prize, ditto                           | ... | ... | £3 3s. |
| Midwifery Prize, for students <i>during</i> their      |     |     |        |
| “final” year, to the value of                          | ... | ... | £4 4s. |

These Prizes are awarded at the end of the Summer Session, and are open to students registered by the Clinical Board, who have attended not less than one Six Months' Course of Medical or Surgical Lectures at the University.

For the Senior Medical Prize, every candidate must produce a certificate of having held the office of Clinical Clerk in either the General or the Queen's Hospital for a period of *six* months; and must deliver to the examiners notes of *four* medical cases which have been personally observed and reported by him during his clerkship, the same to be certified to by the initials of the Physician under whose care the cases were placed. The examination will include a paper of *four* questions on the Principles and Practice of Medicine; a written diagnosis of *two* living cases, with grounds for the same; together with such additional evidence of a practical knowledge of Medicine as the examiners for the time being shall require.

For the Junior Medical Prize, every candidate must produce a certificate of having held the office of Clinical Clerk in either the General or the Queen's Hospital for a period of *three* months. The examination will include a paper of *four* questions on the Principles of Medicine; together with such evidence of a practical knowledge of the methods of physical examination, and of the names, uses, and methods of employment of common drugs, remedies, instruments, and apparatus, as the examiners for the time being shall require.

For the Senior Surgical Prize, every candidate must produce a certificate of having held the office of Surgical Dresser in either the General or Queen's Hospital for a period of *six* months; and must deliver to the examiners notes of *four* surgical cases which have been personally observed and reported by him during his dressership, the same to be certified to by the initials of the Surgeon under whose care the cases were placed. The examination will include a paper of *four* questions on the Principles and Practice of Surgery; the written diagnosis of *two* living cases, with grounds for the same; together with

such additional evidence of a practical knowledge of Surgery as the examiners for the time being shall require.

For the Junior Surgical Prize, every candidate must produce a certificate of having held the office of Surgical Dresser in the General or Queen's Hospital for a period of *three* months. The examination will include a paper of *four* questions on the Principles of Surgery; together with such evidence of the names, uses, and methods of employment of common surgical instruments, bandages, and apparatus, as the examiners for the time being shall require.

For the Midwifery Prize every candidate must produce a certificate of having personally attended at least *ten* cases of Midwifery, and also a certificate of having attended the Out-patient Gynæcological Department at either the General or the Queen's Hospital for *three* months. The examination will include a paper of *two* questions on Diseases peculiar to Women, and *two* questions on the Principles and Practice of Midwifery; together with a practical examination of such a kind as the examiner for the time being shall determine.

Notice of intention to compete for the above Prizes must be communicated to one of the Honorary Secretaries of the Clinical Board at least *seven days* before the day of examination.

In no case will any Prize be awarded unless at least *seventy per cent.* of the total possible number of marks be obtained.

A professional qualification obtained during the Summer Session *immediately* preceding these examinations does not—*per se*—disqualify a candidate.

### Scale of Hospital Fees.

Composition Fee for attendance for the full period required by the various examining bodies on the Medical and Surgical Practice and on the Clinical Lectures at both Hospitals ... .. £42

N.B.—This payment can be made in three instalments of £12, £15, and £15 each—the first on entrance at Hospital, the second at the commencement of the second year, and the third at the commencement of the third year at Hospital.

## OCCASIONAL FEES FOR BOTH MEDICAL AND SURGICAL PRACTICE.

|                       |     |     |     |          |
|-----------------------|-----|-----|-----|----------|
| One Year's Attendance | ... | ... | ... | £22 10s. |
| Six Months'       ,,  | ... | ... | ... | £14.     |
| Three Months'   ,,    | ... | ... | ... | £10.     |

## OCCASIONAL FEES FOR EITHER MEDICAL OR SURGICAL PRACTICE.

|                       |     |     |     |          |
|-----------------------|-----|-----|-----|----------|
| One Year's Attendance | ... | ... | ... | £11 11s. |
| Six Months'       ,,  | ... | ... | ... | £7.      |
| Three Months'   ,,    | ... | ... | ... | £5.      |

All fees must be paid at the time of registration to the Secretary of the Clinical Board. Cheques should be drawn in favour of Dr. O. J. Kauffmann.

### Information for Students attending the Hospitals.

(See also page 415.)

1. The arrangements for Clinical Teaching are, as far as possible, conducted at both Hospitals on the same plan.
2. The recognised hours for Hospital attendance of students are from 9 a.m. to 1 p.m. daily.
3. The Teaching provided consists of:

- 1, Clinical Lectures in the theatre or lecture rooms;
- 2, Clinical Instruction in the Wards;
- 3, Tutorial Classes;
- 4, Pathological Demonstrations.

The first two forms are given by the Members of the Honorary Staffs, in such order as they may arrange among themselves; the third, or Tutorial Classes are conducted by Special Tutors selected for that duty.

4. Clinical Instruction is given in the Medical or Surgical Wards daily, but not during the hour set apart for the Clinical Lectures.

5. Registers of attendance on Clinical Lectures and Tutorial and Ward Classes are kept. Cards are supplied to Final year students, on which each individual attendance will be certified by the teacher.

6. During the First year of the Medical Curriculum, attendance at Hospital is not recognised.

During the Second year of the Medical Curriculum students must attend a Surgical Tutorial Class at the

Hospital once a week. [This course is not compulsory on Candidates for the Diplomas of the English and Scotch Conjoint Boards, and will, under no circumstances, be reckoned as one of the years required by the Schedules of the above-mentioned bodies; all students are, however, strongly advised to attend this course during this year.]

During the Third year of the Medical Curriculum students must attend :

*a*, Clinical Lectures on Surgery; *b*, Medical and Surgical Ward Classes; *c*, Surgical Dressing (including three months Out-Patient and six months In-Patient Dressing); *d*, Medical Tutorial Classes. N.B.—These must be attended for three months before In-Patient Dressing is commenced.

(No student will obtain credit for this year of Hospital work unless he has previously passed his Anatomical and Physiological Examinations.)

During the Fourth year of the Medical Curriculum students should attend :

*a*, Clinical Lectures on Medicine; *b*, Medical and Surgical Ward Classes; *c*, Medical Clinical Clerking for six months; *d*, Clinical Gynæcology; *e*. Post-mortem Clerking. The student must also attend Post-mortem Examinations and Demonstrations during the year.

During the Fifth year of the Medical Curriculum students should attend :

\* *a*, Clinical Instruction in Medicine and Surgery (during this year students are at liberty to attend these subjects at either Hospital, *vide* Reg. 3, p. 423); *b*, Clinical Ophthalmology (three months); *c*, Vaccination; *d*, Fever Hospital (three months); \* *e*, Lunatic Asylum (three months); *f*, Clinical Midwifery (twenty cases); *g*, Gynæcological Clerking (three months); *h*, Instruction in Anæsthetics, consisting of attendance at three Lectures and the personal administration of Anæsthetics in ten cases.

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\* The subjects *a* and *c* must be attended during the final year.

7. Students holding the appointments of Medical Clinical Clerk, or Surgical Dresser, are exempt from Ward Classes in Medicine and Surgery on the days on which their services are required by the Officer under whom they are working.

8. The following Syllabus of Instruction is followed in the Tutorial Classes for Elementary Medicine and Surgery :

MEDICINE : Physical Examination. *Winter*—1, Temperature ; 2, Integumentary System ; 3, Circulatory System ; 4, Respiratory System ; 5, Alimentary System. *Summer*—6, Nervous System ; 7, Urinary System ; 8, The use of the Ophthalmoscope, Laryngoscope, and Aural Speculum.

SURGERY : *Winter*—1, Bandaging ; 2, Strapping ; 3, Application of Splints ; 4, Minor Injuries ; 5, Wound Dressing and Wound Treatment ; 6, Hæmorrhage, Hæmostasis, Tourniquets ; 7, Artificial Respiration. *Summer*—8, Minor Operations : Catheterisation, Plugging the Nares, Hypodermic Injection, Removal of Foreign Bodies from the Eye, Ear, and Oesophagus ; 9, Shock, Fainting, Stings, Leeching, Counter-irritation ; 10, Surface Landmarks and Guides.

### General Regulations.

1. Every student is required to register his name for Hospital Practice within fifteen days of the commencement of the Winter Session. (Due notice of the time and place for such registration will be posted in the Hall of the University and in the General and Queen's Hospitals.)

2. Clinical fees must be paid previously to or at the time of registration, to Dr. O. J. Kauffmann, 22, Broad Street, who will give all information relating to Hospital Practice, and sign schedules, which must be left *at least three days* before they are required.

3. Students must attend twelve months alternately at the General and Queen's Hospitals, as directed at the time of registration, but during their "final" year they may attend at either or both Hospitals.

4. Students who enter for a term of six months or less may choose which Hospital they will attend.

5. All students registering for Hospital Practice are required to attend at least *two-thirds* of the Classes for which they register.

6. Students referred at their Final Examinations must register with the Hon. Secretary of the Clinical Board for any further attendance they may require.

### Midwifery Regulations.

1. Before attending practical midwifery, students shall have passed their Anatomical and Physiological Examinations.

2. They shall conform to the Queen's Hospital Bye-laws which relate to the work of its Midwifery Department.

3. They shall apply in the first place to the Secretary of the Clinical Board, who will furnish them with a "Clinical Midwifery Card," which must be signed by the Obstetric Surgeon on the completion of the duties, and returned.

4. They shall not be engaged in Surgical Dressing, Post-mortem, or Dissecting Room work during the time of their attendance.

By order of the Birmingham Clinical Board,

ROBERT SAUNDBY, M.D., F.R.C.P., *President*.

O. J. KAUFFMANN, M.D.

GEO. HEATON, F.R.C.S.

} *Hon. Secs.*

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## ASSOCIATED HOSPITALS.

The undermentioned Institutions are open to the students of the University free (with the exception of the City Fever Hospital, and the City Asylum), under the following regulations, which have been approved by the Council.

1. That it be recognised that students attending such Hospitals do so upon the understanding that, except in the case of the City Fever Hospital and the City Asylum (at which, by the regulations of various Licensing Bodies, three months' attendance is required), such attendance is in no way to supersede or be considered as equivalent to attendance at the General and Queen's Hospitals.

2. That students who have diligently attended Courses at such Hospitals be, on the recommendation of the staff of any such Hospital, awarded special certificates, such certificates to be signed by the Chairman and Secretary (or other official) of the Medical Board of such Hospital, and countersigned by the Dean on the part of the University.

### The City Fever Hospital, Lodge Road.

#### *Medical Superintendent :*

EUGENE CHATELIER, M.B., C.M. (Edin.)

This Institution is recognised by all the Licensing Bodies as a Fever Hospital at which attendances may be made.

The following Regulations have to be observed :—

1. Every student while within the gates of the Hospital shall be subject to the control of the Medical Superintendent, who has authority to suspend him from further attendance in case of breach of discipline.

2. He shall strictly adhere to the regulations made from time to time with regard to disinfection.

3. He shall not visit any ward except in the company of the Medical Superintendent or his deputy.



4. A register shall be kept at the Hospital, in which shall be entered the name of every student and the number of his attendances.

5. The minimum duration of any course of instruction shall be three months, the hours of attendance to be fixed by the Medical Superintendent.

6. A certificate, to be signed by the Medical Superintendent, shall be granted to each student when he shall have satisfactorily completed his course of study.

7. The fee for each course is *Two Guineas* for the first three months, and *One Guinea* for each additional month or part of a month, payable in advance to the Medical Superintendent.

8. These rules shall apply equally to legally qualified medical men, who may desire to attend the Hospital for the purpose of clinical instruction.

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### The City Asylum, Winson Green.

*Medical Superintendent :*

E. B. WHITCOMBE, M.Sc. ; M.B., Ch.B., M.R.C.S.

This Institution is recognised by all the Licensing Bodies as a Hospital at which attendance may be made in the subject of Mental Disease. By the regulations of British Universities and other Bodies, such attendance may count towards the requisite period of Clinical study. Courses of instruction are given in the months of January, February, March, April, May and June, commencing on the third Saturday in January and April.

A Special Fee of £3 3s. has to be paid to Mr. Whitcombe, to whom application must be made for Rules, &c., as to attendance.

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### Birmingham and Midland Eye Hospital.

*Honorary Consulting Physician :*

R. SAUNDEY, M.D., F.R.C.P., LL.D.

*Honorary Consulting Surgeon:*

D. C. LLOYD-OWEN, M.D., Ch.B. F.R.C.S.I.

*Surgeons:*

H. EALES, M.R.C.S.

E. W. WOOD-WHITE, B.A., M.D., B.Ch.

J. JAMESON EVANS, M.D.; C.M., F.R.C.S.,

Hon. Secretary to the Medical Board.

*Dental Surgeon:*

W. T. MADIN, L.D.S.

*Anæsthetist:*

S. W. HAYNES, M.D.

This Hospital possesses 105 beds, and there is an average daily attendance of out-patients of 213.

This Institution is recognised by Universities and the Royal College of Surgeons, England, and Royal College of Physicians, London, as an Ophthalmic Hospital at which clinical instruction in Ophthalmology may be received. Students attending for a period of three months will be granted Certificates which will qualify for the University and Conjoint Board Examinations.

*Days of Attendance:*

Mr. EALES - - - Tuesday and Friday.

Mr. WOOD-WHITE - Monday and Thursday.

Mr. JAMESON EVANS - Wednesday and Saturday.

Out-patients are seen daily at 9 a.m.

Operations daily at 11 a.m.

Further information may be obtained from the Secretary of the Medical Board, 85, Edmund Street.

**The Royal Orthopædic and Spinal Hospital.***Honorary Consulting Physician:*

C. W. SUCKLING, M.D., M.R.C.P.

*Honorary Consulting Surgeons:*

W. C. FREER, F.R.C.S.

CHARLES WARDEN, M.D., F.R.C.S., Edin.

*Surgeons :*

WILLIAM THOMAS, M.B., F.R.C.S. (*Secretary to the Medical Committee*).

AUGUSTUS CLAY, M.R.C.S.

WM. EDWARD BENNETT, M.B., Ch.B., F.R.C.S.

*Assistant Surgeon :*

W. D. LAWRIE, M.D., F.R.C.S., Edin.

*Anæsthetist :*

WALTER R. JORDAN, M.D., Lond.

Accommodation for 30 In-patients.

*Days of Attendance. (Out-Patients.)*

Mr. WM. THOMAS - Monday and Friday, at 2.30 p.m.

Mr. AUGUSTUS CLAY Thursday, at 3.

Mr. W. E. BENNETT Tuesday and Wednesday at 3 p.m.

Mr. LAWRIE - - Saturday, at 10 a.m.

Operations, Tuesday, at 12, and Friday, at 9 a.m.

*Clinical Assistants* are appointed for three months from third year students. A Certificate will be granted to each student who satisfactorily performs the duties of the office.

Further particulars may be obtained from the Secretary to the Medical Committee, 9, Great Charles Street, from 3 to 5 p.m.

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**Birmingham and Midland Ear and Throat Hospital.**

*Honorary Consulting Physician :*

Sir WALTER FOSTER, Kt., M.D., F.R.C.P., D.C.L., M.P.

*Honorary Consulting Surgeons :*

JOHN ST. S. WILDERS, M.R.C.S. (Eng.)

CHARLES WARDEN, M.D., F.R.C.S. (Edin.)

*Surgeons :*

WRIGHT WILSON, F.R.C.S. (Edin.)

C. J. LEWIS, M.D. (Brux.)

WILLIAM LAMB, M.D., C.M., M.R.C.P. (Lond.)

*Honorary Assistant Surgeon :*

WILFRID GLEGG, M.D., C.M., M.R.C.P. (Edin.)

*Hon. Secretary Medical Board :*

WILFRID GLEGG, 85, Cornwall Street.

*Days of Attendance :*

|                   |           |                                        |
|-------------------|-----------|----------------------------------------|
| Mr. WRIGHT WILSON | - -       | Wednesday, 9.30 to 11 a.m.             |
| Dr. LEWIS         | - - - - - | Thursday, 9.30 to 11 a.m.              |
| Dr. LAMB          | - - - - - | Monday, 9.30 to 11 a.m.                |
| Dr. GLEGG         | - - - - - | Tuesday and Friday, 9.30<br>to 11 a.m. |

Patients are admitted at the side entrance in Barwick Street, daily from 9.30 a.m. to 11 a.m.

The Hospital has 41 Beds in occupation.

A Resident House Surgeon is appointed by the Committee, on the nomination of the Medical Committee, every six months, at a salary at the rate of £70 per annum. He may be re-elected for a further period of six months. Rooms, board and washing are provided in the Hospital.

Candidates for the post must possess a registered qualification in Medicine and Surgery, and will be required to devote their whole time to the service of the Hospital. There is ample time for reading. Further particulars may be obtained from the Secretary of the Hospital, Edmund Street.

Practical demonstrations and instruction are given to Practitioners and Medical Students from 9.30 to 12 a.m.

Fees for attending the Practice of the Hospital:—Practitioners, one month one guinea; three months two guineas; Medical Students, free.

For further particulars apply to Dr. Glegg, Honorary Secretary to the Medical Committee.

NOTE.—Students desirous of attending at any of these Institutions should communicate with the Honorary Secretary to the Medical Board of the Hospital, who will afford him all the information which he may require.

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## LIBRARY OF THE BIRMINGHAM MEDICAL INSTITUTE.

By the courtesy of the Committee of the Medical Institute, students of the Faculty of Medicine are admitted to read in the Library of the Institute under the following conditions.

1. Admission is confined to—

- (a) 3rd, 4th, and 5th years' students.
- (b) 1st and 2nd years' students reading for higher examinations.
- (c) Sons of Members of the Institute, of any year, whether reading for higher examinations or not.

Classes *a* and *b* must apply to the Dean of the Medical Faculty for a card of recommendation, which they must send, together with their letter of application, to the Hon. Secs. of the Institute. Class *c* must apply direct to the Hon. Secs.

2. Students are only admitted to the Library Hall, and *not* to the Reading Room or the Smoking Room.

3. It is understood that the Hall is not to be used for the reading of text-books.

4. Each student will receive a printed ticket of admission from the Librarian. He must show this whenever required, and must get it renewed every year.

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## VACCINATION.

Dr. E. ROBINSON, 213, Bristol Road,  
*Public Vaccinator.*

**Birmingham Teaching Station at Priory Rooms**  
(Opposite Fire Station).

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*Regulations according to the Instructions of the Local  
Government Board for 1904—1905.*

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THREE COURSES OF INSTRUCTION WILL BE GIVEN :

- 1st.—Commencing the second Monday in October.
- 2nd.—Commencing the second Monday in January.
- 3rd.—Commencing the second Monday in May.

An attendance book is provided, wherein every attendance is registered by the signature of the pupil, with other details.

The course of instruction consists of at least six demonstrations and addresses, and it is requisite that the pupil attend during six consecutive weeks.

The Class commences punctually at 1.30 p.m. each day, at which time the Register will be open.

FEE: £1 11s. 6d., payable to Dr. ROBINSON, on entrance.

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## REGULATIONS FOR DEGREES IN DENTISTRY.

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1. The Degrees conferred by the University are those of Bachelor and Master of Dental Surgery (B.D.S. and M.D.S.).

2. All candidates for these Degrees must pass the same Matriculation Examination as that required from candidates for Medical Degrees.

3. The Degree of Bachelor of Dental Surgery is not conferred upon any candidate who has not obtained a License in Dental Surgery from some body legally entitled to confer such qualification. The candidate is not eligible for the Degree until a period of twelve months has elapsed from the passing of his examination for the License in Dental Surgery. Of this period at least six months must be spent in the Dental Department of a General Hospital approved by the University.

4. A. In addition to the License in Dental Surgery the candidate must produce evidence that he has attended the Courses required by Medical Students of the University in the following subjects and passed the Examinations held in the same for Medical and Surgical Degrees :—

- (a) Chemistry, and Practical Chemistry.
- (b) Physics, and Practical Physics.
- (c) Comparative Anatomy.
- (d) Anatomy, and Practical Anatomy.
- (e) Physiology, and Practical Physiology.

B. That he has attended the following Courses, and passed the class examinations held in each of these subjects.

- (f) One Course of Lectures on Medicine.
- (g) One Course of Lectures on Surgery.
- (h) Special Courses of Lectures on the Surgery and Medicine of the Mouth.
- (i) Pathology and Bacteriology.

C. That he has attended Courses, and passed the class examinations in :—

- (k) Dental Histology and Patho-Histology.
- (l) Comparative Dental Anatomy.
- (m) Dental Surgery and Prosthetic Dentistry.

*D.* That he has received instruction in the Clinical Examination of living cases at the Dental Department of a General Hospital for a period of not less than six months.

5. The Final Examination will deal with the subjects in Classes *C.* and *D.*

6. On the expiration of twelve months from the date of passing the Examination for the Degree of Bachelor of Dental Surgery, the candidate will be eligible for that of Master of Dental Surgery.

7. For this Degree candidates will be required to submit a Thesis containing original work and investigations in some subject connected with Dentistry, which Thesis shall be submitted to examiners to be nominated by the Dental Advisory Board. The Degree will be awarded or withheld according to the report of these examiners.

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The teaching of Dentistry is undertaken by the University, acting in association with the Birmingham Dental Hospital and the Birmingham Clinical Board.

The Dental Museum contains a large collection of Specimens, arranged particularly with a view to the teaching of Dental Students.

An Entrance Scholarship, value £37 10s., is awarded annually at the commencement of the Winter Session.

The Dental Hospital is situated near the University, and is open daily (Sundays excepted). A large number of patients are treated there annually.

The Hospital affords every opportunity to the students for acquiring the highest practical knowledge of the Dental art. A large conservancy room has recently been erected with accommodation for twenty chairs. A Mechanical Work-room has been opened, fitted with a view to the practical teaching of crown and bridge work and the manufacture of porcelain continuous gum work, with the latest developments of modern Dentistry. Demon-



strations are given daily by the officials in Fillings of all kinds, including the use of soft and cohesive gold, the application of the rubber dam, and the various forms of plastic fillings.

The General and Queen's Hospitals offer every advantage for the study of general Surgery and Medicine, the arrangements for which are carried out under the direction of the Birmingham Clinical Board (see page 420).

## DEPARTMENT OF DENTISTRY.

### Syllabus of Lecture Courses.

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#### I. *SPECIAL SUBJECTS.*

##### (a) Dental Surgery and Pathology.

*Lecturer:* F. E. HUXLEY, M.D.S., M.R.C.S., L.D.S., Edin.

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Pathology and treatment of inflammation, hypertrophies, atrophies, etc., with special reference to the mouth.

Necrosis and fractures of the jaws.

Irregularities of the teeth ; general principles of their correction.

Odontomes, and tumours of parts adjacent to the teeth.

Caries and other diseases of the teeth.

The action of micro-organisms in the mouth.

Neuralgias and other reflex disorders.

Cleft-palate and obturators.

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##### (b) Practical Dental Surgery.

*Lecturer:* W. T. MADIN, L.D.S., Eng.

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Instruments.

Management of the Surgery.

Hygiene.

Systematic examination of the mouth.

Chart and case records.

Pain—Diagnosis of cause. Alleviation.

Composition of filling materials.

Conservative treatment of the teeth.

Fillings—Preparation of Cavities, Wedges, Devitalization, Sensitive Dentine, Root filling.

Selection of filling material—Porcelain Inlays, Gold, Amalgam, Gutta Percha, Cement, Combination Fillings.

Dental Drugs and their uses.

Exclusion of saliva.

Crowns, selection and adaptation.

Extraction of teeth: (i.) Without Anæsthetics;  
(ii.) under local and general Anæsthetics.

### (c) Dental Anatomy and Physiology.

HUMAN AND COMPARATIVE.

*Lecturer:* JOHN HUMPHREYS, M.D.S., L.D.S.I., F.L.S.

The method and use of the study of odontology.

The general and minute structure and composition of the teeth, and their modifications in fishes, reptiles, and mammals.

The arrangement and uses of the teeth of man and typical animals.

Structure of the gum, periosteum, and dental pulp.

Development of the teeth.

Development of the jaws, alveoli, &c., and their anatomical relations.

Mastication and the oral secretions.

This course is fully illustrated by the large collection of skulls, teeth, &c., contained in the Museum, as also by microscopic preparations and drawings, and a series of lantern slides.

### (d) Dental Histology and Patho-Histology.

*Lecturer:* DENCER WHITTLES, B.D.S., L.D.S., Eng.

The course includes the various methods used in preparing Microscopical Sections of hard and soft tissues in and in relation to the oral cavity.

HISTOLOGICAL:—

The Dental Tissues, including the various forms of Enamel, Dentine, Cementum, Osteo-Dentine, Vaso-Dentine, Plicio-Dentine, &c.

The Tooth Papilla.

The Muco-periosteum and Periodontal Membrane.

Development of the Teeth in Fish, Reptiles, and Mammals.  
Calcification of Dental Tissues :

The Enamel Organ, the Dentine Organ, the Cementum Organ, etc., etc.

**PATHOLOGICAL :—**

Caries of Enamel, Dentine and Cementum.

Muco-Periosteum. Atrophic and hypertrophic conditions.

The Tooth Papilla :

Inflammation.

Various forms of Degeneration.

Periodontal Membranes. Various Modified Conditions.

Bacteria of the Mouth.

Tumours growing in connection with the Oral Cavity, &c., &c.

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**(e) Dental Mechanics.**

*Lecturer : A. E. DONAGAN, L.D.S., Edin., M.A., Cantab.*

Introduction and general principles of Prosthetic Dentistry.

Treatment of the mouth preparatory to the insertion of artificial dentures.

Materials used and methods employed in taking impressions of the mouth.

Casting in plaster and metal.

Methods of obtaining the correct articulation of the teeth.

Vulcanite work.

(a) The preparation of dental rubber.

(b) Artistic arrangement of teeth.

(c) Production of plates of equal thickness.

(d) Flasking, packing, and vulcanizing.

(e) Clasps and strengtheners.

(f) Methods of weighting lower dentures.

Plate and tube work.

Combination work.

Continuous gum work and section blocks.

Making and mounting springs and swivels.

Mechanical treatment of Dental Irregularities and Oral Deformities.

Varieties of crown and bridge work.

Mechanical treatment of Fractured Maxilla.

The course will be fully illustrated by the exhibition of models, appliances, and diagrams.

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*(f)* **Dental Metallurgy.**

*Professor:* THOMAS TURNER, M.Sc., A.R.S.M., F.I.C.

*Lecturer:* O. F. HUDSON, A.R.C.S.

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A Course, including both theoretical and practical instruction is given in the above subject.

During the Winter Session, twenty lectures are delivered, and these deal with the physical, mechanical, and chemical properties of metals; oxidation and reduction; fuel, furnaces, and furnace materials; melting, casting, and working in metals; the properties of gold, silver, copper, tin, lead, zinc, mercury, and other metals, and of alloys and amalgams, so far as they are applied in dentistry.

During the Summer Session a weekly Practical Class is held in the Metallurgical Laboratory to enable students to perform experiments and operations illustrative of some of the more important subjects dealt with in the lectures.

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*(g)* **Medical Diseases of the Mouth.**

*Lecturer:* T. SPACEY WILSON, M.D., M.R.C.P.

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Medicine in its relation to Dentistry.

I.—Constitutional tendencies, the recognition of which is of importance to the Dental Surgeon, *e.g.*, the nervous temperament, the phlegmatic temperament, &c.

II.—Diseases, local or general, which affect the integrity of the teeth.

*(a)* Diseases interfering with the Development of the Teeth :

- (1) By local interference with the nutrition of the growing teeth, *e.g.*, inflammations of the mouth, &c.
  - (2) By action through the nervous system, *e.g.*, Cretinism.
  - (3) By action on the general nutrition of the body and in other ways, *e.g.*, Fevers, Rickets, Scrofula, wasting diseases, &c.
- (b) Diseases interfering with the maintenance of the teeth :
- (1) By local interference with their nutrition, Alveolar inflammations, &c.
  - (2) By direct action upon the teeth—mechanically, *e.g.*, by tooth-grinding ; chemically, *e.g.*, by altering the alkalinity of the saliva, by acid eructations, &c.
  - (3) By constitutional action impairing their vitality.

Diseases interfering thus with the integrity of the teeth—Gout, Rheumatism, Dyspepsia, Influenza, &c.

III.—Morbid constitutional states which render ordinary dental operations unusually dangerous.

Hæmophilia—Cardiac Disease, &c.

IV.—Morbid constitutional states or local disease of the mouth resulting from disease of the teeth, *e.g.*, Dyspepsia, Pyæmia and Sapræmia, disturbances of the nervous system, Neuralgia, &c.

### (h) Surgical Diseases of the Mouth.

*Lecturer* : FRANK MARSH, F.R.C.S.

Inflammation, Abscess, Ulceration, Caries, Necrosis. Alveolar and Antral Abscess.

Specific Diseases : Syphilis, Tubercle, Erysipelas, Cancerum Oris.

Closure of Jaws, Hæmorrhage, Diseases of Salivary Glands.

Congenital Defects : Fissures and Hypertrophies. Methods of closure or removal.

Tumours:—Innocent, Malignant; Cysts:—Classification and clinical features, Symptoms, Diagnosis, and treatment of those growing in buccal cavity, and from the maxillary bones.

*(i) Dental Bacteriology.**Professor* : R. F. C. LEITH, M.Sc. ; M.B., B.Sc., M.A., F.R.C.P.E.*Assistant* : JAMES MILLER, D.Sc., M.D., M.R.C.P. (Edin.)

This course begins about the middle of November and is continued daily at 2 o'clock for about a month. It consists of Lectures and lantern demonstrations upon the structure, classification, and function of micro-organisms, especially those relating to the mouth, gums, teeth, and throat. Due notice of the first meeting will be posted in the Medical and Dental Departments of the University. Candidates intending to take their University degree in Dental Surgery must also take out a Course of Practical Laboratory work, for which suitable arrangements will be made at intervals on application to the Pathological Department.

II. *GENERAL SUBJECTS.*

Anatomy, Practical Anatomy, Physiology, Practical Physiology, Chemistry, Practical Chemistry, Physics, Comparative Anatomy, Pathology, Bacteriology, Medicine, and Surgery. (See Faculty of Medicine).

## OPEN ENTRANCE SCHOLARSHIP FOR DENTAL STUDENTS.

- 1.—One will be offered annually of the value of £37 10s.
- 2.—It will be awarded to the student who, entering in October as a candidate for the Dental Degree, or having entered not earlier than the previous April, shall pass the best examination in the subjects studied during his apprenticeship.
- 3.—Candidates must be under the age of twenty-one years.
- 4.—Application for admission must be sent to the Dean of the Medical Faculty on or before October 12th.

**Text-books.**

The following text books must be purchased by Dental Students :—

- Dental Anatomy (Tomes).
- Diseases and Injuries of the Teeth (Smale and Colyer).
- Theory and Practice of Surgery (Walsham).
- Dental Microscopy (Hopewell Smith).
- Injuries and Surgical Diseases of the Face, Mouth, and Jaws (Marshall).
- Mechanical Dentistry (Richardson).
- Dental Metallurgy (Smith).

## DENTAL DEPARTMENT.

1904-1905.

## FIRST YEAR TIME TABLE.

| SUBJECTS.                          | Mon.                                   | Tu.  | Wed.            | Th.  | Fri.  | Sat. |
|------------------------------------|----------------------------------------|------|-----------------|------|-------|------|
| WINTER SESSION.                    |                                        |      |                 |      |       |      |
| Chemistry Lectures .....           | 9.30                                   | 9.30 | 9.30            | 9.30 | ..    | ..   |
| "    Practical .....               | 2.0                                    | ..   | 2.0             | ..   | ..    | ..   |
| Anatomy Lectures.....              | 10.30                                  | ..   | 10.30           | ..   | ..    | ..   |
| Practical Anatomy.....             | ..                                     | ..   | <i>(Daily.)</i> |      | ..    | ..   |
| Physics :—                         |                                        |      |                 |      |       |      |
| Lectures .....                     | 11.30                                  | ..   | 11.30           | ..   | 11.30 | ..   |
| Practical .....                    | ..                                     | ..   | ..              | ..   | 2.30  | ..   |
| Dental Metallurgy Lectures .....   | 4.0                                    | ..   | ..              | ..   | ..    | ..   |
| †Dental Hospital Demonstrations .. | ..                                     | 4.0  | 4.0             | 4.0  | 4.0   | 9.0  |
| Practical Dental Mechanics .....   | <i>(Daily at the Dental Hospital.)</i> |      |                 |      |       |      |
| SUMMER SESSION.                    |                                        |      |                 |      |       |      |
| Chemistry :—                       |                                        |      |                 |      |       |      |
| Lectures .....                     | 9.30                                   | ..   | 9.30            | ..   | 9.30  | ..   |
| Practical .....                    | 2.0                                    | 2.0  | ..              | 2.0  | ..    | ..   |
| Physics :—                         |                                        |      |                 |      |       |      |
| Lectures .....                     | ..                                     | 9.30 | ..              | 9.30 | ..    | ..   |
| Practical .....                    | ..                                     | ..   | ..              | ..   | 2.30  | ..   |
| Physiology—Practical Histology ..  | 11.0                                   | 11.0 | 11.0            | 11.0 | 11.0  | ..   |
| Dental Mechanics Lectures .....    | ..                                     | 4.0  | ..              | ..   | ..    | ..   |
| Practical Dental Metallurgy .....  | ..                                     | ..   | ..              | ..   | ..    | 10.0 |
| Practical Dental Mechanics .....   | <i>(Daily at the Dental Hospital.)</i> |      |                 |      |       |      |
| †Dental Hospital Demonstrations..  | 4.0                                    | ..   | 4.0             | 4.0  | 4.0   | 9.0  |

† Not attended by Degree Students.

All Students are requested to take notice that they are expected to attend at least two-thirds of the lectures of each course, and also the class examinations, and that the Schedules of those who do not observe these regulations will not be signed.



## SECOND YEAR TIME TABLE.

| SUBJECTS.                                                                                   | Mon.                  | Tu.   | Wed.            | Th.   | Fri.  | Sat. |
|---------------------------------------------------------------------------------------------|-----------------------|-------|-----------------|-------|-------|------|
| WINTER SESSION.                                                                             |                       |       |                 |       |       |      |
| General or Queen's Hospital Practice ( <i>Students must attend three days a week</i> )..... | 9.0                   | 9.0   | 9.0             | 9.0   | 9.0   | 9.0  |
| Dental Hospital Practice .....                                                              | 9.0                   | 9.0   | 9.0             | 9.0   | 9.0   | 9.0  |
| Anatomy :—                                                                                  |                       |       |                 |       |       |      |
| Lectures .....                                                                              | 12.0                  | 12.0  | 12.0            | 12.0  | ..    | ..   |
| Practical .....                                                                             | ..                    | ..    | <i>(Daily.)</i> |       | ..    | ..   |
| Physiology :—                                                                               |                       |       |                 |       |       |      |
| Lectures .....                                                                              | ..                    | 10.30 | 10.30           | 10.30 | 10.30 | ..   |
| Practical .....                                                                             | ..                    | 2.30  | ..              | ..    | ..    | ..   |
| *Comparative Anatomy :—                                                                     |                       |       |                 |       |       |      |
| Lectures .....                                                                              | 2.0                   | ..    | 2.0             | ..    | ..    | ..   |
| Practical .....                                                                             | 3.0                   | ..    | 3.0             | ..    | ..    | ..   |
| Dental Anatomy Lectures .....                                                               | ..                    | ..    | ..              | ..    | 4.0   | ..   |
| Dental Surgery Lectures .....                                                               | ..                    | ..    | ..              | 4.0   | ..    | ..   |
| Practical Dental Surgery Lectures                                                           | <i>(Oct. to Dec.)</i> |       |                 | ..    | 3.0   | ..   |
| Dental Histology Lectures .....                                                             | <i>(Jan. to Mar.)</i> |       |                 | 3.0   | ..    | ..   |
| SUMMER SESSION.                                                                             |                       |       |                 |       |       |      |
| Dental Hospital Practice .....                                                              | 9.0                   | 9.0   | 9.0             | 9.0   | 9.0   | 9.0  |
| *Anatomy :—                                                                                 |                       |       |                 |       |       |      |
| Lectures .....                                                                              | 12.0                  | ..    | 12.0            | ..    | 12.0  | ..   |
| Practical .....                                                                             | ..                    | ..    | <i>(Daily.)</i> |       | ..    | ..   |
| Physiology .....                                                                            | ..                    | 3.0   | ..              | 3.0   | ..    | ..   |
| Practical Dental Histology.....                                                             | ..                    | 2.0   | ..              | ..    | 4.0   | ..   |

\* Not attended by Students reading for L.D.S. only.

## THIRD YEAR TIME TABLE.

| SUBJECTS.                                                                                     | Mon.                     | Tu.                   | Wed. | Th. | Fri. | Sat. |
|-----------------------------------------------------------------------------------------------|--------------------------|-----------------------|------|-----|------|------|
| WINTER SESSION.                                                                               |                          |                       |      |     |      |      |
| General or Queen's Hospital Practice ( <i>Students must attend three days a week.</i> ) ..... | 9.0                      | 9.0                   | 9.0  | 9.0 | 9.0  | 9.0  |
| Dental Hospital Practice.....                                                                 | 9.0                      | 9.0                   | 9.0  | 9.0 | 9.0  | 9.0  |
| Medicine Lectures.....                                                                        | ..                       | 3.0                   | 3.0  | ..  | 3.0  | ..   |
| Surgery Lectures .....                                                                        | ..                       | 4.0                   | 4.0  | ..  | 4.0  | ..   |
| Pathology and Bacteriology .....                                                              | 2.0                      | 2.0                   | 2.0  | 2.0 | 2.0  | ..   |
| Practical Pathology .....                                                                     | 3.0                      | ..                    | ..   | 3.0 | ..   | ..   |
| Dental Bacteriology .....                                                                     | <i>(By arrangement.)</i> |                       |      |     |      |      |
| Diseases of the Mouth (Surgical)..                                                            | 4.0                      | <i>(Jan. to Mar.)</i> |      | ..  | ..   | ..   |
| "    "    "    (Medical)..                                                                    | <i>(By arrangement.)</i> |                       |      |     |      |      |
| SUMMER SESSION.                                                                               |                          |                       |      |     |      |      |
| Dental Hospital Practice.....                                                                 | 9.0                      | 9.0                   | 9.0  | 9.0 | 9.0  | 9.0  |
| Practical Pathology .....                                                                     | 2.0                      | ..                    | ..   | ..  | 2.0  | ..   |

\* Not attended by students reading for L.D.S. only.

## REGULATIONS RELATING TO THE DIPLOMA OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND IN DENTAL SURGERY.

Candidates who register as Dental Students after the 1st January, 1897, are required to pass three Examinations—the Preliminary Science Examination, the First Professional Examination, and the Second Professional Examination—and to produce the following Certificates before admission to the several Examinations:—

### PRELIMINARY SCIENCE EXAMINATION.

1. Of having received instruction, at an Institution recognised for the purpose, in Chemistry, Physics, and Practical Chemistry.

*This instruction may be taken prior to the Date of Registration as a Dental Student.*

### FIRST PROFESSIONAL EXAMINATION.

2. Of having been engaged, during a period of not less than three years, in acquiring a practical familiarity with the details of Mechanical Dentistry, under the instruction of a competent Practitioner, or under the direction of the Superintendent of the Mechanical Department of a recognized Dental Hospital, where the arrangements for teaching Mechanical Dentistry are satisfactory to the Board of Examiners in Dental Surgery. In the case of qualified Surgeons, evidence of a period of not less than two instead of three years of such instruction will be sufficient.

*This instruction may be taken prior to the Date of Registration as a Dental Student.*

3. Of registration as a Dental Student by the General Medical Council, 299, Oxford Street, London, W.
4. Of having attended at a recognized Medical School:—
  - (a) A course of Lectures on Dental Metallurgy.
  - (b) A course of Practical Dental Metallurgy.

- (c) A course of Lectures on Dental Mechanics.
- (d) A course of Practical Dental Mechanics, including the manufacture and adjustment of six dentures and six crowns.

#### SECOND PROFESSIONAL EXAMINATION.

5. Of having been engaged during *four years* in the acquirement of professional knowledge, subsequently to the date of registration as a Dental Student.
6. Of having attended at a recognized Medical School :—
  - (a) A course of Dental Anatomy and Physiology.
  - (b) A separate course of Dental Histology, including the preparation of Microscopical Sections.
  - (c) A course of Dental Surgery.
  - (d) A separate course of Practical Dental Surgery.
  - (e) A course of not less than 5 Lectures on the Surgery of the Mouth.
  - \*(f) A course of Dental Bacteriology.
  - \*(g) A course of Dental Materia Medica.
7. Of having attended at a recognized Dental Hospital or in the Dental Department of a recognized general Hospital, the Practice of Dental Surgery during two years.
8. Of having attended at a recognized Medical School :—
  - (a) A course of Lectures on Anatomy.
  - (b) A course of Lectures on Physiology.
  - (c) A separate Practical Course of Physiology.
  - (d) A course of Lectures on Surgery.
  - (e) A course of Lectures on Medicine.

*Students are required to attend the Examinations which are held in the several Classes.*

9. Of having performed Dissections at a recognized Medical School during not less than 12 months.
10. Of having attended, at a recognized Hospital or Hospitals, the Practice of Surgery and Clinical Lectures on Surgery during two Winter Sessions.

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\* These certificates will only be required of students who enter at a recognized Dental Hospital and School on or after the 1st May, 1902.

## 11. Of being 21 years of age.

*The Certificates of professional study will be required to show that students have attended the courses of lectures, etc., to the satisfaction of their Teachers.*

*The Examinations held in the various classes are compulsory for all students.*

NOTE.—Professional study prior to the date of registration as a Dental Student is not recognized except in the case of Chemistry, Physics, and Practical Chemistry, and of instruction in the details of Mechanical Dentistry, and will not be counted under any circumstances in lieu of part of the four years' study subsequent to the date of registration as a Dental Student.

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# BIRMINGHAM DENTAL HOSPITAL,

71, NEWHALL STREET.

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OPEN DAILY AT 9 A.M.

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**Admission.**—Students are admitted to this Hospital on the understanding that it is their intention to obtain the Dental Diploma of one of the Royal Colleges of Surgeons of the United Kingdom *cum curriculo*.

**Attendance.**—The Hospital is open daily at nine o'clock (Sundays excepted), and students must attend at that hour unless their attendance is required at one of the General Hospitals.

The Hospital must be attended for two years consecutively, irrespective of University vacations.

**Dresserships.**—Regular days will be appointed by the House Surgeon for each student to attend in the Extracting, Anæsthetic, and Conservancy Rooms. Cases for filling, and operating chairs will be allotted to students by the House Surgeon or the Dental Officers in attendance.

**Requirements of Curriculum.**—During the two years' attendance students will be required :—

- (a) To attend as dressers in the Extracting and Anæsthetic Rooms.
- (b) To perform filling and other conservative operations.
- (c) To treat at least four regulation cases mechanically.
- (d) To make and insert at least six dentures and at least eight crowns (six being collar).
- (e) To attend the Course of Demonstrations.

**Mechanical Department.**—This Department is open every afternoon (Saturdays and Sundays excepted) for making, under the supervision of a skilled teacher, dentures and regulating appliances. Students will be appointed to attend in rotation by the Senior Officer of the Department.

**Registration.**—Dental Students are required to register their names for Dental Hospital Practice on the first Tuesday in October, and the first Tuesday in April.

**Fees.**—For Dental Hospital Practice and Demonstrations, twenty guineas, payable to the Dean of the Dental Hospital, F. W. Richards, Esq., who may be seen at the Hospital on Tuesdays, at 10 a.m.

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## DENTAL FEES.

The Dental student can enter either as a Composition or Occasional student, *i.e.*, he can pay his fees in two instalments or as he takes out each class. Composition students pay a MEMBERSHIP FEE of £3 3s., once for all, occasional students pay £1 1s. for each Winter Session, and 10s. 6d. for each Summer Session during which they may be in attendance upon lectures. The regulations in connection with the attendance of medical students (see p. 406) apply also to Dental students, whose composition fee, however, covers normally three and not five years.

COMPOSITION FEES.—The Composition Fee for the courses required for the L.D.S. of any of the Corporations *alone* is £60, that for the courses required for the L.D.S. and the degree in Dentistry of the University is £75, that for the L.D.S. in combination with the M.R.C.S. and L.R.C.P. is £85, and that for the M.B., Ch.B., and B.D.S., is £95. Each of these fees covers the cost of the courses given at the University for the qualifications indicated, but does not include incidental fees nor fees for Hospital teaching. Each of these Composition fees is payable in two instalments, one on entrance, the other at the commencement of the second year of study.

INCIDENTAL FEES.—These fees are intended to cover the cost of apparatus, material, &c., used in the various practical classes. They are governed by the same rules as those applying to medical students and are payable to the Secretary.

|                               |     |     |     |     | £ | s. | d. |
|-------------------------------|-----|-----|-----|-----|---|----|----|
| Dissecting Room (each winter) | ... | ... | ... | ... | 1 | 11 | 6  |
| " " (each summer)             | ... | ..  | ..  | ... | 0 | 10 | 6  |
| Practical Physiology          | ... | ... | ... | ... | 2 | 2  | 0  |
| " Pathology...                | ... | ... | ... | ... | 1 | 11 | 6  |
| Dental Histology ..           | ... | ... | ... | ... | 1 | 1  | 0  |

MICROSCOPES.—For statement as to Microscopes, which applies only to Students reading for Degrees and *not* to L.D.S. students, see page 408.

CLASS FEES.—Students wishing to do so can pay for each class as they take it, the following table showing the fees for each course.

|                                                 | £  | s. | d. |
|-------------------------------------------------|----|----|----|
| Anatomy and Practical Anatomy (each winter) ... | 11 | 11 | 0  |
| * " " " (one summer) ...                        | 3  | 3  | 0  |
| Physiology ... ..                               | 6  | 6  | 0  |
| " Practical ... ..                              | 4  | 4  | 0  |
| Chemistry ... ..                                | 4  | 4  | 0  |
| " Practical ... ..                              | 3  | 3  | 0  |
| *Comparative Anatomy ... ..                     | 5  | 5  | 0  |
| Physics ... ..                                  | 5  | 5  | 0  |
| *Pathology ... ..                               | 4  | 4  | 0  |
| * " Practical ... ..                            | 4  | 4  | 0  |
| Bacteriology (special Dental) ... ..            | 1  | 1  | 0  |
| Medicine ... ..                                 | 6  | 6  | 0  |
| Surgery ... ..                                  | 6  | 6  | 0  |
| Dental Anatomy ... ..                           | 3  | 3  | 0  |
| " Surgery ... ..                                | 3  | 3  | 0  |
| " Mechanics ... ..                              | 2  | 2  | 0  |
| " Metallurgy ... ..                             | 2  | 2  | 0  |
| " " Practical ... ..                            | 2  | 2  | 0  |
| Diseases of the Month .. ..                     | 2  | 2  | 0  |
| Dental Histology ... ..                         | 2  | 2  | 0  |
| Practical Dental Surgery ... ..                 | 2  | 2  | 0  |

NOTE.—Subjects marked with an asterisk are *not* required by students only reading for the L.D.S. Composition students requiring to repeat a course will be charged a half-fee for the same. In the case of Practical Anatomy this will be £3 3s.

EXAMINATION FEES.—The fees payable before a student is admitted to any of the examinations are set down below. A student failing at any examination will be called upon to pay a half-fee when next presenting himself for the same examination.

|                                     | £  | s. | d. |
|-------------------------------------|----|----|----|
| Matriculation ... ..                | 2  | 0  | 0  |
| First Examination ... ..            | 4  | 0  | 0  |
| Second Examination ... ..           | 4  | 0  | 0  |
| Final Examination for B.D.S. ... .. | 5  | 0  | 0  |
| Examination for M.D.S. ... ..       | 10 | 0  | 0  |

For General Surgical Hospital Practice, Lectures, and Demonstrations :

|                             |     |    |   |
|-----------------------------|-----|----|---|
| SURGERY : Two Winters... .. | £10 | 10 | 0 |
| " One Winter ... ..         | 6   | 6  | 0 |

*Payable to Dr. O. J. Kauffmann, 22, Broad Street, Hon. Secretary to Clinical Board.*



For the convenience of those desiring to ascertain the total cost of obtaining the License of Dentistry of the Royal College of Surgeons of England, and the Degree of Bachelor of Dental Surgery in the University, the following table has been drawn up. It presumes that the student enters by the Composition method and makes no allowance for failures at examinations. No allowance is made for the cost of books or instruments for private tuition (if necessary), or for the fee for apprenticeship.

|                                        | £  | s. | d. | £    | s. | d. |
|----------------------------------------|----|----|----|------|----|----|
| MATRICULATION ... ..                   | 2  | 0  | 0  | 2    | 0  | 0  |
| FIRST WINTER.—Membership Fee...        | 3  | 3  | 0  |      |    |    |
| Half Composition ..                    | 37 | 10 | 0  | 40   | 13 | 0  |
| FIRST SUMMER.—Dental Hospital...       | 21 | 0  | 0  | 21   | 0  | 0  |
| <i>First Examination, University</i>   | 4  | 0  | 0  | 4    | 0  | 0  |
| <i>Prel. Sci. Exam. L.D.S.</i> ...     | 3  | 3  | 0  | 3    | 3  | 0  |
| SECOND WINTER.—Half Composition ...    | 37 | 10 | 0  |      |    |    |
| A General Hospital ...                 | 10 | 10 | 0  | 48   | 0  | 0  |
| <i>Second Examination, University</i>  | 4  | 0  | 0  | 4    | 0  | 0  |
| <i>First Professional, L.D.S.</i> ...  | 2  | 2  | 0  | 2    | 2  | 0  |
| THIRD SUMMER.— <i>Final L.D.S.</i> ... | 15 | 15 | 0  | 15   | 15 | 0  |
| FOURTH YEAR.—A General Hospital ...    | 6  | 6  | 0  | 6    | 6  | 0  |
| <i>Final B.D.S. Examination</i> ...    | 5  | 0  | 0  | 5    | 0  | 0  |
|                                        |    |    |    | £151 | 19 | 0  |

## REGULATIONS AFFECTING PAST AND PRESENT STUDENTS OF THE BIRMINGHAM MEDICAL SCHOOL,

Approved by the University Council, 4th May, 1904.

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That Past Students of the Birmingham Medical School who have taken out their whole course in Birmingham, and are duly qualified Medical Men, be permitted at any period during the seven years commencing on the 1st of October, 1900, to present themselves for a Final Examination for the Degrees of Bachelor of Medicine and Surgery.

### SUBJECTS FOR EXAMINATION.

- (a) \*Medicine, including Therapeutics.
- (b) \*Surgery and Operative Surgery.
- (c) \*Midwifery and Gynæcology.
- (d) Pathology and Bacteriology.
- (e) Forensic Medicine and Toxicology.

\* This Examination will consist of three parts:—(1) written papers, (2) *viva voce*, (3) clinical.

### EXAMINATION FEE, £10.

That all present students of the School of Medicine who originally entered as first year students of the school, and have since regularly pursued their studies in the school, be permitted to present themselves for the examinations of the University without passing its matriculation examination, and without repeating any courses of lectures which they may already have taken out.

That all students of the School of Medicine falling under the above category who have passed any medical examinations in any British or Irish University be allowed to count such examination or examinations in lieu of the corresponding examination or examinations in the University of Birmingham, but that no such allowance be made in the case of students who have passed examinations conducted by licensing bodies other than Universities. Provided that in all cases it shall be essential that the student shall pass the Final Examination of the University of Birmingham.

**ORDINANCE CONCERNING PRIVILEGES OF PAST  
STUDENTS OF THE BIRMINGHAM  
DENTAL SCHOOL.**

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That Past Students of the Birmingham Dental School (including those who qualify not later than the November, 1900 Examination of the Royal College of Surgeons of England) who have taken out their whole course in the Birmingham School, and are duly qualified and Registered Dental Surgeons, be permitted at any period during the seven years commencing on the 1st of October, 1900, to present themselves for a Final Examination for the Degree of Bachelor of Dental Surgery.

**SUBJECTS FOR EXAMINATION.**

- (a) The Surgery and Medicine of the Mouth.
- (b) Dental Bacteriology.
- (c) Dental Histology and Patho-Histology.
- (d) Comparative Dental Anatomy.
- (e) Dental Surgery and Prosthetic Dentistry.

*The Examination will be partly written, partly practical, and partly oral.*

**EXAMINATION FEE, £10.**

**ORDINANCE RELATING TO  
PAST STUDENTS OF MASON UNIVERSITY  
COLLEGE IN THE DEPARTMENT OF DENTISTRY.**

That Students who entered the Department of Dentistry in Mason University College in the years 1897 to 1899 inclusive, and have obtained both the License in Dental Surgery and the qualifications in Medicine and Surgery from some body legally qualified to confer such qualifications, and produce evidence that after having obtained the License in Dental Surgery they have received instruction in the Dental Department of a General Hospital for a period of not less than six months, be admitted to the Degree of Bachelor in Dental Surgery on passing the final examination for such Degree held by the University.

*Approved by the University Council, 2nd March, 1904.*

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## Day Training College.

FOR THE TRAINING OF TEACHERS IN PUBLIC  
ELEMENTARY SCHOOLS.

### Master of Method (Men) :

FRANK ROSCOE.

*Assistant* : C. W. MILLIGAN, B.A.

*Teacher of Music* : ARNOLD GRIFFIN.

### Head Mistress (Women) :

ANNE HOLLINGWORTH JOYCE. B.A.

*Assistant Mistresses* :

FLORENCE C. M. CLARK, B.A. (Lond.).

EDITH U. SOWERBUTTS, B.Sc. (Vict.)

ADA BLANCHE TAYLOR.

ANNIE E. WARMINGTON, B.A. (Lond.).

AMY J. WALKER, B.A. (Lond.).

FRANCES COLLIE, B.A.

### DAY TRAINING COLLEGE.

In connection with the University there is a Training College, with departments for men and women, constituted under the regulations of the Board of Education, with the object of preparing students to become certificated teachers in Public Elementary Schools.

The ordinary Course covers two years, permission to reside for a third year being granted by the Board of Education in certain cases of special fitness.

Before admission Candidates must satisfy the following requirements :—

- (a) Obtain a first or second class in the Queen's Scholarship Examination or pass one of the examinations accepted by the Board of Education as equivalent thereto.
- (b) Satisfy the Medical Officer of the College as to their general health and physical fitness to undertake the work of teaching.

- (c) Have attained the age of 18 years on the 1st September immediately preceding admission.
- (d) Sign a declaration that it is their bona-fide intention to take up the work of teaching in public elementary schools.

After admission, students pursue in general subject the curriculum of the University, this Course being recognised by the Board of Education as equivalent to Part II. of the Certificate Syllabus. In addition they receive professional training in the form of :—

- (a) Lectures on the theory and practice of teaching.
- (b) Practice under supervision in certain of the Board Schools of the City.
- (c) Criticism and demonstration lessons.

This Course, with lessons in Reading, Music, &c., is intended to prepare for the Examination held annually by the Board of Education in the subjects of Part I. of the Certificate Syllabus.

During residence an annual grant of £25 in the case of men, and £20 in the case of women is received from the Board of Education. From this sum are deducted the University fees, amounting annually to £12 10s. (men) and £10 (women). The remainder serves as a contribution towards the cost of board and lodging, books, &c.

There is no hostel connected with the University, but students must reside with their parents or guardians, or in lodgings approved by the Master of Method or the Head Mistress, who exercise general supervision over their conduct and studies.

For forms of application and other particulars application should be made to

MR. F. ROSCOE (Men),

MISS JOYCE (Women),

The University of Birmingham.

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## GRADUATES.

## FACULTY OF SCIENCE.

## D.Sc.

## Date of Degree.

|                               |     |     |      |
|-------------------------------|-----|-----|------|
| Allan, George Edwin...        | ... | ... | 1903 |
| Buller, Arthur Henry Reginald | ... | ... | 1903 |
| Miller, James                 | ... | ... | 1904 |
| Price, Thomas Slater...       | ... | ... | 1903 |
| Watts, Francis                | ... | ... | 1904 |
| Wright, William               | ... | ... | 1904 |

## M.Sc.

|                                |     |     |      |
|--------------------------------|-----|-----|------|
| Barling, Gilbert               | ... | ... | 1901 |
| Barrow, Fred                   | ... | ... | 1904 |
| Bridge, Thomas William         | ... | ... | 1901 |
| Brown, Adrian John             | ... | ... | 1901 |
| Burstall, Frederick William    | ... | ... | 1901 |
| Carlier, Edmond William Wace   | ... | ... | 1901 |
| Carter, Alfred Henry           | ... | ... | 1901 |
| Chamberlain, Charlotte         | ... | ... | 1903 |
| Collinge, Walter Edward        | ... | ... | 1903 |
| Done, Edward                   | ... | ... | 1904 |
| Farmer, Robert Crosbie         | ... | ... | 1903 |
| Foxwell, Arthur                | ... | ... | 1901 |
| Frankland, Percy Faraday       | ... | ... | 1901 |
| Friend, John Albert Newton     | ... | ... | 1903 |
| Gebhard, Norman Leslie         | ... | ... | 1903 |
| Heath, Robert Samuel           | ... | ... | 1901 |
| Hill, Bostock                  | ... | ... | 1901 |
| Hillhouse, William             | ... | ... | 1901 |
| Horton, Frank                  | ... | ... | 1901 |
| Lapworth, Charles              | ... | ... | 1901 |
| Leith, Robert Francis Calder   | ... | ... | 1901 |
| Lloyd, John Alexander          | ... | ... | 1901 |
| Lloyd, Jordan                  | ... | ... | 1902 |
| Lodge, Oliver                  | ... | ... | 1901 |
| Malins, Edward                 | ... | ... | 1901 |
| May, Bennett                   | ... | ... | 1901 |
| Merritt, Onèra Amelia          | ... | ... | 1903 |
| Morgan, Caroline Edith         | ... | ... | 1903 |
| Morrison, James Thomas Jackman | ... | ... | 1901 |

|                                      |     |     |     |      |
|--------------------------------------|-----|-----|-----|------|
| Phillips, Percy                      | ... | ... | ... | 1903 |
| Poynting, John Henry                 | ... | ... | ... | 1901 |
| Redmayne, Richard Augustine Studdert | ... | ... | ... | 1902 |
| Roberton, Edward Heton               | ... | ... | ... | 1904 |
| Sand, Henry Julius Salomon           | ... | ... | ... | 1901 |
| Saundby, Robert                      | ... | ... | ... | 1901 |
| Slator, Arthur                       | ... | ... | ... | 1901 |
| Smith, Priestley                     | ... | ... | ... | 1901 |
| Taylor, John William                 | ... | ... | ... | 1901 |
| Thompson, Herbert Bryan              | ... | ... | ... | 1904 |
| Turner, Thomas                       | ... | ... | ... | 1902 |
| Turner, William Ernest Stephen       | ... | ... | ... | 1904 |
| Twigg, Elinor Adeline Nicolina       | ... | ... | ... | 1903 |
| Twiss, Douglas Frank                 | ... | ... | ... | 1903 |
| Warth, Frederick John                | ... | ... | ... | 1903 |
| Watts, William Whitehead             | ... | ... | ... | 1902 |
| Whitecombe, Edmund Bancks            | ... | ... | ... | 1901 |
| Willeox, Frank Ernest                | ... | ... | ... | 1903 |
| Windle, Bertram Coghill Alan         | ... | ... | ... | 1901 |
| Wood, Ethel Mary Reader              | ... | ... | ... | 1902 |
| Wright, William                      | ... | ... | ... | 1903 |
| Wynn, William Henry                  | ... | ... | ... | 1901 |

## B.Sc.

|                                  |     |     |     |      |
|----------------------------------|-----|-----|-----|------|
| Ashford, Florence                | ... | ... | ... | 1902 |
| Atchison, Arthur Francis Turnour | ... | ... | ... | 1903 |
| Ault, Wilfred Beaumont           | ... | ... | ... | 1904 |
| Bach, Mary Gertrude              | ... | ... | ... | 1903 |
| Badger, Alfred Bernard           | ... | ... | ... | 1904 |
| Barnes, James Hector             | ... | ... | ... | 1904 |
| Barrow, Fred                     | ... | ... | ... | 1903 |
| Boulton, William Savage          | ... | ... | ... | 1902 |
| Boyer, George Edward             | ... | ... | ... | 1902 |
| Chattaway, Frederick Daniel      | ... | ... | ... | 1902 |
| Clough, George William           | ... | ... | ... | 1901 |
| Collinge, Walter Edward          | ... | ... | ... | 1902 |
| Coltart, William Laurie          | ... | ... | ... | 1903 |
| Cox, Arthur Hubert               | ... | ... | ... | 1904 |
| Denning, Arthur Du Pré           | ... | ... | ... | 1901 |
| Done, Edward                     | ... | ... | ... | 1903 |
| Elrhardt, Ernest Francis         | ... | ... | ... | 1902 |
| Friend, John Albert Newton       | ... | ... | ... | 1902 |



|                                  |     |     |     |      |
|----------------------------------|-----|-----|-----|------|
| Gebhard, Norman Leslie           | ... | ... | ... | 1901 |
| Gedye, Nicholas George           | ..  | ... | ... | 1901 |
| George, Lilian Emilie            | ... | ... | ... | 1904 |
| Gibson, Walcot                   | ... | ... | ... | 1901 |
| Groom, Percy                     | ... | ... | ... | 1902 |
| Housman, Robert Holden           | ... | ... | ... | 1901 |
| Hulse, Richard Percival          | ... | ... | ... | 1903 |
| Knapp, Arthur William            | ... | ... | ... | 1901 |
| Lapworth, Arthur                 | ... | ... | ... | 1902 |
| Lapworth, Herbert                | ... | ... | ... | 1901 |
| Lotka, Alfred James              | ... | ... | ... | 1901 |
| Maddocks, Arthur Percy           | ... | ... | ... | 1903 |
| Magson, Egbert Hockey            | ... | ... | ... | 1901 |
| Manton, Arthur Woodroffe         | ... | ... | ... | 1901 |
| Merritt, Onèra Amelia            | ... | ... | ... | 1902 |
| Morgan, Caroline Edith           | ... | ... | ..  | 1901 |
| Morris, George Harris            | ... | ... | ..  | 1901 |
| Phillips, Percy                  | ... | ... | ..  | 1901 |
| Phillips, Walter Charles Stanley | ... | ... | ... | 1902 |
| Pickard, Robert Howson           | ... | ..  | ... | 1901 |
| Pooler, Frederick John           | ... | ... | ... | 1902 |
| Pope, Thomas Henry               | ... | ... | ... | 1904 |
| Priest, Samuel Benjamin          | ... | ... | ... | 1902 |
| Roberts, Samuel Arthur           | ... | ... | ... | 1904 |
| Silvester, Harry                 | ... | ... | ... | 1902 |
| Smith, Cades Alfred              | ... | ... | ... | 1903 |
| Stacey, William Henry            | ... | ... | ... | 1904 |
| Taylor, Joseph Andrew            | ... | ... | ... | 1902 |
| Thompson, Charles Joseph         | ... | ... | ... | 1904 |
| Thompson, Herbert Bryan          | ... | ... | ... | 1903 |
| Thorneycroft, Frederick James    | ... | ... | ... | 1903 |
| Turner, Thomas                   | ... | ... | ... | 1901 |
| Twiss, Douglas Frank             | ... | ... | ... | 1902 |
| Udal, John Pountney              | ... | ... | ..  | 1904 |
| Warth, Frederick John            | ... | ... | ... | 1901 |
| Watts, Francis                   | ... | ... | ... | 1902 |
| Wilding, Jane Ellis              | ... | ... | ... | 1902 |
| Willcox, Frank Ernest            | ... | ... | ... | 1901 |

## FACULTY OF ARTS.

## D. LITT.

|                      |     |     |     |      |
|----------------------|-----|-----|-----|------|
| Fiedler, Elise Minna | ... | ... | ... | 1903 |
|----------------------|-----|-----|-----|------|

## M.A.

|                                |     |     |     |      |
|--------------------------------|-----|-----|-----|------|
| Barnett, Arthur James          | ... | ... | ... | 1901 |
| Bévenot, Clovis                | ... | ... | ... | 1901 |
| Dixon, William Macneile        | ... | ... | ... | 1901 |
| Fiedler, Elise Minna           | ... | ... | ... | 1902 |
| Fiedler, Hermann Georg         | ... | ... | ... | 1901 |
| Hawkes, Margaret Mellard       | ... | ... | ... | 1902 |
| Hughes, Alfred                 | ... | ... | ... | 1904 |
| Lee, Winifred                  | ... | ... | ... | 1903 |
| Masterman, John Howard Bertram | ... | ... | ... | 1902 |
| May, Elsie Gertrude            | ... | ... | ... | 1901 |
| Muirhead, John Henry           | ... | ... | ... | 1901 |
| Sommenschein, Edward Adolf     | ... | ... | ... | 1901 |
| Thomas, Henry                  | ... | ... | ... | 1902 |
| Wodehouse, Helen Marion        | ... | ... | ... | 1904 |

## B.A.

|                              |     |     |     |      |
|------------------------------|-----|-----|-----|------|
| Brockington, William Allport | ... | ... | ... | 1902 |
| Davis, Amy                   | ... | ... | ... | 1903 |
| Douglas, Ella Winifred       | ... | ... | ... | 1902 |
| Handley, Marion              | ... | ... | ... | 1903 |
| Hawkes, Margaret Mellard     | ... | ... | ... | 1901 |
| Jackson, Francis Edgar       | ... | ... | ... | 1902 |
| Joyce, Anne Hollingworth     | ... | ... | ... | 1904 |
| Kirk, Richard Thomas Francis | ... | ... | ... | 1901 |
| Lee, Winifred                | ... | ... | ... | 1902 |
| Mackintosh, Christina Alice  | ... | ... | ... | 1904 |
| Marchant, Anne Jane          | ... | ... | ... | 1901 |
| Mason, Lottie Beatrice       | ... | ... | ... | 1904 |
| Moon, Melita Mary Annie      | ... | ... | ... | 1904 |
| Payton, Margaret Evelyn      | ... | ... | ... | 1904 |
| Plant, David Wallace         | ... | ... | ... | 1903 |
| Smith, Jane Ingham           | ... | ... | ... | 1903 |
| Wragge, Harriet              | ... | ... | ... | 1904 |
| Wyatt, Alfred John           | ... | ... | ... | 1903 |

## FACULTY OF MEDICINE.

## M.D.

|                               |     |     |     |      |
|-------------------------------|-----|-----|-----|------|
| Browne, Henry William Langley | ... | ... | ... | 1902 |
| Evans, John Jameson           | ... | ... | ... | 1903 |
| Lloyd, Jordan                 | ... | ... | ... | 1904 |
| Motteram, Henry Prince        | ... | ... | ... | 1902 |

|                                      |      |
|--------------------------------------|------|
| Orton, John Orton ... ..             | 1902 |
| Owen, David Charles Lloyd ... ..     | 1902 |
| Polson, James Ronald ... ..          | 1903 |
| Potts, William Alexander ... ..      | 1903 |
| Sisam, William ... ..                | 1903 |
| Stanley, John Douglas ... ..         | 1904 |
| Townsend, Arthur Allen Deykin ... .. | 1903 |
| Webb, Thomas Law ... ..              | 1903 |
| Wilkes, George Arthur ... ..         | 1902 |

## CH.M.

|                                      |      |
|--------------------------------------|------|
| Hewetson, John Thomas ... ..         | 1904 |
| Leedham-Green, Charles Albert ... .. | 1904 |
| Wilson, Thomas ... ..                | 1904 |

## M.B. AND CH.B.

|                                          |      |
|------------------------------------------|------|
| Atkins, John Francis ... ..              | 1902 |
| Barnes, Arthur Stanley ... ..            | 1903 |
| Baylis, Henry ... ..                     | 1902 |
| Beazeley, Tom William ... ..             | 1904 |
| Belcher, George Clement ... ..           | 1901 |
| Bennett, William Edward ... ..           | 1902 |
| Bradford, Cordley ... ..                 | 1903 |
| Brown, Harold Corser ... ..              | 1903 |
| Browne, Henry William Langley ... ..     | 1901 |
| Burd, Reginald Shirley ... ..            | 1901 |
| Bywater, Ernest Frederick Wharton ... .. | 1903 |
| Cant, Arthur ... ..                      | 1901 |
| Cant, William John ... ..                | 1902 |
| Chapman, Walter ... ..                   | 1902 |
| Charsley, Gilbert William ... ..         | 1901 |
| Clendinnen, William McEntire ... ..      | 1902 |
| Cook, William... ..                      | 1904 |
| Cureton, Edward ... ..                   | 1901 |
| Emanuel, Joseph George ... ..            | 1902 |
| Emery, Arthur ... ..                     | 1901 |
| Flewitt, Charles York ... ..             | 1904 |
| Fowler, Thomas Webb ... ..               | 1901 |
| Gettings, Cuthbert Keay ... ..           | 1904 |
| Godson, John Edward ... ..               | 1901 |
| Greenwood, Frank Redmayne ... ..         | 1903 |
| Hall, Frederick James Vincent ... ..     | 1901 |
| Harcourt, Charles Harold ... ..          | 1901 |

|                                         |     |     |     |      |
|-----------------------------------------|-----|-----|-----|------|
| Hawley, Arthur                          | ... | ... | ... | 1901 |
| Hill, George Leonard                    | ... | ... | ... | 1901 |
| Jackson, Wilfrid Anthony Legh           | ... | ... | ... | 1901 |
| Jordan, John Furneaux                   | ... | ... | ... | 1903 |
| Kneale, James Coole                     | ... | ... | ... | 1903 |
| Lawrence, Sidney Cameron                | ... | ... | ... | 1904 |
| Leedham-Green, Charles                  | ... | ... | ... | 1901 |
| Lloyd, Jordan...                        | ... | ... | ... | 1902 |
| Longley, John Augustus Noel             | ... | ... | ... | 1902 |
| Longmore, Tom                           | ... | ... | ... | 1901 |
| Loxton, William Arthur                  | ... | ..  | ... | 1904 |
| Lunn, Cyril Reginald                    | ... | ... | ... | 1902 |
| Lyster, Robert Arthur                   | ... | ... | ... | 1902 |
| Motteram, Henry Prince                  | ... | ... | ... | 1901 |
| Nuthall, Alexander Wathen               | ... | ... | ... | 1904 |
| Orford, Herbert John                    | ... | ... | ... | 1901 |
| Orton, John Orton                       | ... | ... | ... | 1901 |
| Owen, David Charles Lloyd...            | ... | ... | ... | 1901 |
| Page, Edward Ferdinand                  | ... | ... | ... | 1901 |
| <i>Pepper, Henry William (the late)</i> | ... | ... | ... | 1901 |
| Perry, Sidney Herbert                   | ... | ... | ... | 1903 |
| Polson, James Ronald                    | ... | ... | ... | 1902 |
| Pooler, Harry William                   | ... | ... | ... | 1901 |
| Pooler, John Read                       | ... | ... | ... | 1903 |
| Prosser, Astley Bennett                 | ... | ... | ... | 1901 |
| Quirke, Michael Joseph                  | ... | ... | ... | 1901 |
| Sisam, William                          | ... | ... | ... | 1901 |
| Smith, Priestley                        | ... | ... | ... | 1901 |
| Stanley, Arthur John                    | ... | ... | ... | 1901 |
| Townsend, Arthur Allen Deykin           | ... | ... | ... | 1901 |
| Utting, Horace Ebbage                   | ... | ... | ..  | 1902 |
| Weaver, Alfred Ernest Remmett           | ... | ... | ... | 1904 |
| Webb, Thomas Law                        | ... | ... | ..  | 1901 |
| Whitcombe, Edmund Bancks                | ..  | ... | ... | 1901 |
| Wilkes, George Arthur                   | ... | ... | ... | 1901 |
| Wynn, William Henry                     | ... | ... | ..  | 1903 |

## M.D.S.

|                     |     |     |     |      |
|---------------------|-----|-----|-----|------|
| Humphreys, John     | ... | ... | ... | 1901 |
| Huxley, Frank Earle | ..  | ... | ... | 1901 |
| Round, Harold       | ... | ... | ... | 1902 |

## B.D.S.

|                          |     |     |     |      |
|--------------------------|-----|-----|-----|------|
| Parrott, Arthur Hughes   | ... | ... | ... | 1903 |
| Pickerill, Henry Percy   | ... | ... | ... | 1904 |
| Round, Harold            | ... | ... | ... | 1901 |
| Wellings, Alfred William | ... | ... | ... | 1903 |
| Whittles, John Dencer    | ... | ... | ... | 1901 |

## B.Sc. (PUBLIC HEALTH).

|                        |     |     |     |      |
|------------------------|-----|-----|-----|------|
| Barwise, Sidney        | ... | ... | ... | 1902 |
| Motteram, Henry Prince | ... | ... | ... | 1903 |

## FACULTY OF COMMERCE.

## M.COM.

|                          |     |     |     |      |
|--------------------------|-----|-----|-----|------|
| Ashley, William James    | ... | ... | ... | 1902 |
| Dicksee, Lawrence Robert | ... | ... | ... | 1903 |

## DIPLOMAS.

## DIPLOMA IN PUBLIC HEALTH.

|                        |     |     |     |      |
|------------------------|-----|-----|-----|------|
| Bonis, Francis William | ... | ... | ... | 1901 |
| Currie, John Ronald    | ... | ... | ... | 1904 |
| Dawson, Thomas         | ... | ... | ... | 1904 |
| Dyson, Thomas Edward   | ... | ... | ... | 1902 |
| Lyster, Robert Arthur  | ... | ... | ... | 1901 |
| Sims, Aaron            | ... | ... | ... | 1901 |
| Turner, Robert         | ..  | ... | ... | 1901 |

## TEACHERS' DIPLOMA.

## HIGHER.

|                             |     |     |     |      |
|-----------------------------|-----|-----|-----|------|
| Mackintosh, Christina Alice | ... | ... | ... | 1904 |
| Plant, David Wallace        | ... | ... | ..  | 1904 |
| Wodehouse, Helen Marion     | ... | ... | ... | 1903 |
| Wyatt, Horace Graham        | ... | ... | ... | 1904 |

## GENERAL.

|                          |     |     |     |      |
|--------------------------|-----|-----|-----|------|
| Douglas, Ella Winifred   | ... | ..  | ... | 1902 |
| Evans, Henry Edgar       | ... | ... | ... | 1901 |
| Hannah, Emily Clair      | ... | ..  | ... | 1904 |
| Sutcliffe, Annie Boardal | ... | ... | ... | 1901 |
| Wynn, William Benjamin   | ... | ... | ... | 1902 |

## MINING DIPLOMA.

|                    |     |     |    |      |
|--------------------|-----|-----|----|------|
| Fidoe, John Walter | ... | ... | .. | 1904 |
|--------------------|-----|-----|----|------|

## BREWING DIPLOMA.

|                               |     |     |     |             |
|-------------------------------|-----|-----|-----|-------------|
| Bexon, Joseph Donald          | ... | ... | ... | 1901        |
| Cooke, Richard Ernest         | ... | ... | ... | 1902        |
| Dupree, William               | ... | ... | ... | 1903        |
| Elliott, William Blake        | ... | ... | ... | 1901        |
| Gibbons, John                 | ... | ... | ... | 1903        |
| Grant, Thomas Edward          | ... | ... | ... | 1903        |
| Jones, Archdale Mercer        | ... | ... | ... | 1902        |
| <i>Jones, William Vincent</i> | ... | ... | ... | <i>1904</i> |
| King, William Gavin           | ... | ... | ... | 1904        |
| Lathbury, George Lionel       | ... | ... | ... | 1904        |
| Mears, Frank Charles          | ... | ... | ... | 1904        |
| Millar, Edmund                | ... | ... | ... | 1904        |
| Morley, Thomas Henry          | ... | ... | ... | 1901        |
| Oliver, Brian Edward          | ... | ... | ... | 1904        |
| Robottom, Charles Henry       | ... | ... | ... | 1902        |
| Rudgard, Charles Walter       | ... | ... | ... | 1902        |
| Ryland, Chawner               | ... | ... | ... | 1904        |
| Seabrooke, Frank Gordon       | ... | ... | ... | 1903        |

## HONOURS.

## AT B.Sc. DEGREE.

|                                          |     |     |      |
|------------------------------------------|-----|-----|------|
| Ashford, Florence (Geology)              | ... | ... | 1902 |
| Barrow, Fred (Chemistry)                 | ... | ... | 1903 |
| Cox, Arthur Hubert (Chemistry & Geology) | ... | ... | 1904 |
| Friend, John Albert Newton (Chemistry)   | ... | ... | 1902 |
| Merritt, Onèra Amelia (Zoology)          | ... | ... | 1902 |
| Phillips, Percy (Physics)                | ... | ... | 1901 |
| Twiss, Douglas Frank (Chemistry)         | ... | ... | 1902 |

## AT B.A. DEGREE.

|                                                           |     |     |     |      |
|-----------------------------------------------------------|-----|-----|-----|------|
| Kirk, Richard Thomas Francis (Latin, Greek<br>and French) | ... | ... | ... | 1901 |
|-----------------------------------------------------------|-----|-----|-----|------|

## ASSOCIATE MEMBERS OF GUILD OF GRADUATES.

|                                                              | ELECTED.    |
|--------------------------------------------------------------|-------------|
| Addenbrooke, Edward Homfray, M.R.C.S. ....                   | 1897        |
| Ainsworth, William Brown, B.A. (Lond.) .....                 | 1890        |
| Austin, John Worsley, M.A. (Lond.) .....                     | 1892        |
| <i>Austin, William Henry, B.A. (the late).....</i>           | <i>1897</i> |
| Baker, Thomas James, B.Sc. (Lond.) .....                     | 1888        |
| <i>Barclay, John, B.Sc. (the late) .....</i>                 | <i>1890</i> |
| Barnes, Frank, F.R.C.S. (Eng.), M.B., B.S. (Lond.) ..        | 1900        |
| Barratt, John Oglethorpe Wakelin, M.D., B.Sc. (Lond.) .....  | 1884        |
| Barrett, Helen Mary, M.A. (Lond.) .....                      | 1897        |
| Baylis, Walter Henry, B.A. (Lond.).....                      | 1890        |
| Bayliss, Jessie Sproat, B.Sc. (Lond.).....                   | 1892        |
| Beck, Charles Ridgeway, A.I.C. ....                          | 1890        |
| Billington, William, M.B. ....                               | 1900        |
| Bishop, Douglas Howard .....                                 | 1900        |
| Blackburn, Alfred Brown Ernest (Senior Engineering Diploma)  | 1897        |
| Blake, James Edward Huxley, B.A. (Cantab.), B.Sc. (Lond.)... | 1887        |
| Blakesley, Henry John, F.R.C.S. ....                         | 1897        |
| Bond, Francis Thomas, M.D. (Lond.).....                      | 1897        |
| Branson, Guy Joseph, B.A., M.B. (Lond.) .....                | 1890        |
| Brockington, Alfred Allen, B.A. (Lond.).....                 | 1892        |
| Cantrill, Thomas Crosbee, B.Sc. (Lond.).....                 | 1890        |
| Carter, Mrs. E. M. ....                                      | 1890        |
| Case, Alfred Edwin, B.Sc. (Lond.) ..                         | 1899        |
| Clayton, John Hazelwood, M.B. (Lond.) .....                  | 1897        |
| Cooper, Arthur James, B.Sc. (Lond.) .....                    | 1890        |
| Corbett, Ethel, M.A. (Lond.) .....                           | 1899        |
| Cullis, Frederick John.....                                  | 1890        |
| Daniell, George Frederick, B.Sc. (Lond.) .....               | 1890        |
| Darlaston, George Ernest, B.A. (Lond.).....                  | 1899        |
| Dewes, Henry .....                                           | 1890        |
| Edmunds, Edward William, M.A. (Lond.).....                   | 1899        |
| Edwards, Jessie, M.A. (Lond.) .....                          | 1890        |
| Edwards, Herbert James, B.Sc. (Lond.) .....                  | 1893        |
| Elkington, Ernest Alfred, M.B. (Lond.), M.R.C.S. ....        | 1897        |
| Ellis, Mrs. Bernard .....                                    | 1890        |
| Emery, Walter d'Este, B.Sc. (Lond.).....                     | 1893        |

|                                                                           | ELECTED. |
|---------------------------------------------------------------------------|----------|
| Etheridge, Arthur Thomas, B.Sc. ....                                      | 1900     |
| Exell, William Wallis, B.A. (Lond.).....                                  | 1890     |
| Faulkner, William, B.A. ....                                              | 1901     |
| Featherstone, William Bartrop, M.D. (Lond.).....                          | 1890     |
| Fenby, Alaric Vincent Colpoys, B.Sc. (Lond.) .....                        | 1892     |
| Finney, William Arthur, B.A. (Lond.) .....                                | 1893     |
| Fridlander, Ernest David, B.Sc. (Lond.) .....                             | 1893     |
| Gamgee, Leonard Parker, F.R.C.S. ....                                     | 1893     |
| Griffiths, John Crisp, B.Sc. (Lond.) .....                                | 1893     |
| Gregory, Charles Frederick, M.A. (Lond.) .....                            | 1897     |
| Hackett, John (Senior Engineering Diploma) .....                          | 1890     |
| Haines, Aubrey Wheeler, B.Sc. (Lond.) .....                               | 1890     |
| Harrold, Edith ... ..                                                     | 1897     |
| Heatheote, Henry Leonard .....                                            | 1900     |
| Hooson, John Edward, B.Sc. (Lond.).....                                   | 1893     |
| Housman, Basil Williams, F.R.C.S. ....                                    | 1893     |
| Jackson, Alfred Edward (Senior Engineering Diploma) .....                 | 1889     |
| James, Elizabeth Angela .....                                             | 1890     |
| Jenkyn-Brown, Lilian Evelyn, M.A. (Lond.) .....                           | 1892     |
| Jones, Oliver, B.A. (Lond.) .....                                         | 1891     |
| Jordan, Walter Ross, M.D. (Lond.) .....                                   | 1890     |
| Joyce, Thomas Goode, B.Sc. (Lond.).....                                   | 1897     |
| Kauffmann, Otto Jackson, M.D., Lond. ....                                 | 1900     |
| Kellett, Alfred Featherstone, B.A. (Cantab.).....                         | 1890     |
| Kidner, Norman William .....                                              | 1890     |
| Kinder, Frederick Thomas (Senior Engineering Diploma) .....               | 1897     |
| Langford, William Morris (Senior Engineering Diploma).....                | 1888     |
| Lay, Charles Johnson, B.A. (Cantab.).....                                 | 1890     |
| Ledsam, Henry Thomas Clutton Salt, B.A. (Lond.) .....                     | 1890     |
| Loasby, Harry Clement, B.A. (Lond.).....                                  | 1893     |
| Love, Ernest F. J., M.A. (Cantab.) .....                                  | 1888     |
| Lloyd, Emily Jane, B.Sc. (Lond.) .....                                    | 1893     |
| Mackey, Edward, M.D. (Lond.), M.R.C.P. ....                               | 1897     |
| MacSwiney, Felix, B.A. (Lond.).....                                       | 1890     |
| Malins, Joseph, Jun., M.A. (Lond.).....                                   | 1891     |
| Marks, Lionel Simeon (Senior Engineering Diploma), B.Sc.<br>(Lond.) ..... | 1891     |
| Marks, Benjamin, B.A. (Lond.).....                                        | 1893     |



## ELECTED.

|                                                  |      |
|--------------------------------------------------|------|
| Marris, William Arthur, M.D. (Lond.)             | 1898 |
| Marson, Cyril Darby, M.R.C.S., L.R.C.P., L.D.S.  | 1898 |
| Marson, Francis Herbert, F.R.C.S. (Eng.)         | 1896 |
| Martin, Arthur James, M.D. (Lond.)               | 1893 |
| Mathews, Marianne                                | 1890 |
| Melson, George Hyde, M.D. (Lond.)                | 1891 |
| Merrall, George James, B.A. (Lond.)              | 1893 |
| Messiter, Matthew Arden, M.R.C.S.                | 1897 |
| Millar, James Hill                               | 1901 |
| Miners, Bernard Perry, M.A. (Lond.)              | 1890 |
| Moncrieff, Lady                                  | 1890 |
| Norris, Richard, M.D.                            | 1897 |
| O'Dowd, John Austin, M.B.                        | 1900 |
| Onions, Charles Talbut, M.A. (Lond.)             | 1893 |
| Pemberton, Jane Elizabeth                        | 1896 |
| Pugh, John Vernon (Senior Engineering Diploma)   | 1897 |
| Purslow, Charles Edwin, M.D. (Lond.), M.R.C.P.   | 1890 |
| Reynolds, Albert Heywood, M.A. (Lond.)           | 1890 |
| Riley, John Thomas, D.Sc. (Lond.)                | 1884 |
| Russell, James William, M.D. (Cantab.)           | 1893 |
| Sadler, Ernest Alfred, M.D. (Lond.)              | 1893 |
| St. Johnston, George, M.D. (Lond.)               | 1896 |
| Shakespeare, Gilbert Arden, B.A., B.Sc. (Lond.)  | 1897 |
| Shedden, Arnold Ward, M.R.C.S., L.R.C.P., L.D.S. | 1898 |
| Sinigar, Harry, M.B. (Lond.)                     | 1896 |
| Smith, Thomas Manners, M.A., M.R.C.S.            | 1893 |
| Snell, Ernest Hugh, M.D., B.Sc. (Lond.)          | 1890 |
| Southall, Gertrude Eliza                         | 1890 |
| Stansbie, John Henry, B.Sc. (Lond.)              | 1893 |
| Stern, Arthur Landauer, D.Sc. (Lond.)            | 1888 |
| Stern, Rose, B.Sc. (Lond.)                       | 1898 |
| Sturge, Mary Darby, M.D. (Lond.)                 | 1890 |
| Suckling, Cornelius William, M.D. (Lond.)        | 1897 |
| Suckling, Marianne E.                            | 1897 |
| Sudborough, John Joseph, D.Sc. (Lond.)           | 1890 |
| Teichelmann, Ebenezer, F.R.C.S.                  | 1890 |
| Thomas, William, M.B. (Lond.), F.R.C.S. (Eng.)   | 1897 |
| Tibbetts, Thomas Major, M.B. (Lond.), D.P.H.     | 1896 |

## ELECTED.

|                                                            |      |
|------------------------------------------------------------|------|
| Vincent, Thomas Swale, M.B. (Lond.) .....                  | 1898 |
| Vincent, Joseph Herbert, D.Sc. (Lond.)...                  | 1899 |
| Ward, Charles Frederick Myers.....                         | 1893 |
| Warmington, Edward Augustus, Ph.D. (Leipzig) .....         | 1894 |
| Wheatley, Arthur John (Senior Engineering Diploma) .....   | 1887 |
| White, Mrs. Robert, D.Sc., (Lond.) .....                   | 1888 |
| White, James Atkin Henton, M.D., F.R.C.S. ....             | 1897 |
| Wilders, John St. Swithin, M.R.C.S. ....                   | 1897 |
| Williams, Walter Collingwood, B.Sc. (Lond.) .....          | 1884 |
| Wood, George Croft Orwin (Senior Engineering Diploma)..... | 1887 |



## UNDERGRADUATES IN RESIDENCE

DURING THE SESSION 1903-04.

- 
- 377 Acton, Harriett.  
372 Adams, John.  
297 Airston, Alexander Jonathan.  
99 Aitken, Robert Wallace.  
249 Anderson, Edward Bertram.  
331 Ansell, Mabel Jessie.  
456 Ashley, Wilfred Severne.  
371 Ashmore, William Gerald.  
110 Astbury, Reginald Hudson.  
397 Atkinson, Joseph.  
387 Austin, Harold Austin.  
120 Austin, John Staines.  
129 Aviss, William George.  
369 Bailey, Charlotte.  
426 Baker, John Edward.  
209 Ball, Lawrence.  
294 Ball, Susan.  
260 Barlow, Thomas Morgan.  
269 Bates, John Leslie.  
460 Belfitt, Eleanor Constance.  
429 Belton, Frances Nora.  
431 Belton, Nelly Gwendolyn.  
419 Bentley, Raymond Pinder.  
315 Bishop, Ernest William.  
378 Blackwell, Norman George.  
469 Blaker, Reginald Bromhead.  
267 Bland, Wilfred.  
280 Bleby, Mary Louise.  
418 Blewett, Richard Rodda.  
263 Boby, Eleanor Katherine.  
210 Boome, Edward James.  
365 Bowater, John.  
27 Bowater, William.  
242 Bracey, Herbert Charles Horace.  
299 Bristow, Ernest.  
409 Browning, Harold Gordon.  
376 Bryce, William Alexander.

- 306 Buchanan, Mary McFarlane.  
16 Bunting, Edward Lancelot.  
271 Burchell, Lilian Ann.  
61 Burman, Hugh Westley.  
339 Bushill, Thomas William.  
277 Butler, Arthur Wellesley.  
442 Campion, Ethel Elizabeth.  
46 Carruthers, Walter Donald.  
446 Cave-Browne-Cave, Nigel Frederick.  
47 Clare, Thomas Charles.  
275 Clark, Hilda.  
300 Clarke, Frank.  
237 Clarke, Mary.  
308 Clewlow, Frank Dawson.  
58 Cordon, Archibald.  
215 Creswell, Arthur Wilfred.  
96 Crowe, Henry Neville.  
430 Cutting, Ethel Sophia.  
276 Dale, John.  
347 Davis, Beatrice Alice.  
349 Davies, Dora Annie.  
434 Davies, Ellen Elizabeth.  
82 Davies, Fred Thomas Hollway.  
48 Dawson, Joseph Bernard.  
423 Deeley, Criss Parsonage.  
380 Dembski, Louis Arthur Lloyd.  
245 Descombes, Marie Elysee Alphonse.  
464 Dickinson, Ralph.  
124 Doubleday, John Lloyd.  
410 Douglas, Helena.  
192 Dowson, Richmond.  
348 Dudley, Ethel Matilda.  
282 Eastman, Frank Henry.  
337 Edge, Cyril Barrows.  
415 Edwards, John Selwyn.  
233 Eglington, Clara.  
451 Emery, Eleanor Park.  
384 Ensoi, Ainslie Jackson.  
7 Evans, Harvey Atkins.  
317 Everitt, William Arthur.  
467 Faulkner, William.  
250 Fenton, James.

- 261 Findley, Albert Edward.  
262 Fisher, Alice Laura.  
312 Fisher, William Ernest.  
451 Freeman, Amy Helen.  
303 Frizell, Edith Annie.  
224 Gaunt, Eric Thomas.  
223 Gaunt, John Kennedy.  
132 Gettings, Harold Salter.  
65 Glissan, Francis Reginald D'Alton.  
417 Goode, John Frederic.  
458 Gray, Elsie Lavinia.  
389 Green, George Wilfrid Acland.  
39 Greener, Helen Gertrude.  
455 Greenway, Noel Wilson.  
375 Gregory, Bernard Charles.  
17 Hadley, Leonard Leigh.  
319 Haines, Harry.  
398 Hale, Harry William.  
298 Harmar, Cuthbert Izon.  
221 Harris, Arnold William Elsmere.  
363 Harrison, Ernest Claude.  
374 Hartley, Mary Forrest.  
9 Hayes, Lionel Chattock.  
381 Hayward, Charles William.  
216 Heathcote, Ernest William.  
257 Hemmings, Clara.  
278 Henry, Albert Ernest.  
395 Heptinstall, Walter.  
287 Herbert, Gerald Oscar.  
301 Hickmans, Evelyn Marion.  
413 Hill, Edith Millicent.  
370 Hill, Sydney Ashton.  
226 Hincks, Arthur Cecil.  
433 Hinks, Albert Edward.  
333 Hipkins, John Charlton.  
453 Hodder, Beatrice.  
400 Holroyd, John Othie.  
441 Holloway, Ettie Gertrude.  
329 Hooson, Thomas James Stewart.  
393 Horne, William Charles Percy.  
195 Horsburgh, Harry.  
92 Horton, William Claude.

- 454 Hough, Sidney John.  
28 Houghton, William Cuthbert.  
344 Huddleston, George James Procter.  
330 Humphreys, Percy James.  
305 Hunt, Florence Elizabeth.  
189 Inms, Augustus Daniel.  
295 Irvine, Louise Jane.  
310 Isaac, Francis Swinton.  
437 Jennings, Editha Helena.  
309 Jennings, Helena Mary.  
201 Johnson, Claude.  
80 Johnston, Thomas Reginald St.  
284 Jones, Harold Bruce.  
468 Jones, James Thomas Gwynne.  
404 Jones, Wilfrid.  
350 Jope, Ethel Mary.  
20 Jotham, George Frederick.  
90 Katz, Jacques.  
231 Kenwrick, Miriam Ida.  
362 Kershaw, Laurence William.  
470 Khayatt, Shakir.  
272 Knight, Arthur Noel Stanley.  
444 Lamb, James Victor.  
205 Landon, Hilda Mary.  
382 Lawton, Frederick.  
403 Lawton, Hubert Ralph.  
354 Leon, Patrice Sylvester.  
360 Lillie, Denis Gascoigne.  
302 Lineham, Andrew Wood.  
208 Lloyd, Bertram Arthur.  
401 Loach, Arthur William.  
407 Loveridge, Percy Norman.  
391 Lovatt, Arthur.  
170 Mackey, Leonard George Joseph.  
368 McCready, Violet Maud.  
293 McKinnell, Flora Eastaway.  
436 McNaughton, Sarah Margaret.  
273 Mallory, George Kennaway.  
405 Mason-Jones, Archibald John.  
241 Mason, Philip James.  
366 Mellor, John Leslie.  
253 Mills, George Percival.

- 222 Minahan, Rosa.  
270 Mold, George Henry Chavasse.  
251 Moncur, James.  
379 Moon, George Bassett.  
356 Morley, Edith Mary.  
332 Murray, John Claude.  
359 Newton, George Coleman.  
390 Newton, Herbert George.  
402 Nicholls, Edgar Allen.  
274 Overton, Elsie Mai.  
424 Owen, Gertrude Emily.  
281 Page, Arthur Arnold.  
457 Page, Reginald Percival.  
336 Palmer, Herbert Edward.  
422 Parry, Ethel.  
353 Parry, Lilian.  
14 Partridge, Gertrude Mary.  
238 Penrose, Nevill Cogbill.  
285 Pettifor, Charles Ernest.  
435 Phillips, Amy Lilian.  
207 Phipson, Edward Selby.  
343 Pickup, Arthur McLean.  
425 Pinchbeck, Albert.  
212 Pipe, Thomas Sylvanus.  
176 Poynting, Arthur.  
18 Price, Horace John D'Arcy Gerrard.  
414 Priestman, Lilian Ada.  
334 Quinney, Horace.  
60 Ravenhill, Thomas Holmes.  
438 Regan, John.  
340 Ritchie, George Thwaites.  
341 Ritchie, John Lichtenstein.  
351 Robbins, Ethel Evangeline.  
175 Roberts, Walter Rowland Southall.  
67 Rollason, George.  
4 Rollason, Norman John Lancelot.  
288 Rose, Robert.  
136 Ryland, Chawner.  
399 Sampson, Herbert Henry.  
214 Sanders, Arthur Addison.  
314 Sanders, Thomas Henry.  
412 Saunders, Agnes Eliza.

- 259 Scott, Gilbert Shaw.  
217 Scott, Percy Eliot.  
115 Seymour, James Alfred.  
406 Shay, Harold Edgar.  
447 Silk, Ethel Mary.  
421 Silvester, Clara Emily.  
361 Smart, John Deiro.  
22 Smith, Arthur John.  
383 Smith, Charles Gordon.  
196 Smith, David Priestley.  
452 Smith, Ethel Mabel.  
279 Smith, Mary Eliza Beatrice.  
445 Smith, Norman Elliott.  
373 Stacey, Gerald Frank.  
416 Stackhouse, Percy Charles.  
364 Stanford, Robert Viner.  
342 Stanton, Herbert Julian.  
55 Sullivan, Patrick Arthur.  
3 Tangye, Claude Edward.  
448 Taylor, Charles Henry.  
450 Taylor, Dora Kitty.  
292 Taylor, Matilda.  
307 Taylor, Venetta Lillian.  
355 Teague, Francis Clifford Dyche.  
367 Terry, Harold Cairns.  
286 Thomas, Basil Lewis.  
440 Thomas, Elsie Lilian Poyser.  
57 Thomason, Henry Philip.  
420 Thompson, Roland.  
266 Thompson, Rupert Wesley.  
97 Thwaite, Harold.  
439 Tidmarsh, Elsie Isabel.  
198 Timmins, George Dickinson.  
283 Timmins, Leonard Graham.  
352 Tremlett, Henrietta Grigg.  
206 Tunbridge, Edward William.  
466 Waldron, Ethel Annie.  
358 Walker, Arthur Oldfield.  
394 Walker, Richard.  
5 Walker, Spencer Graham.  
126 Walsh, Fred Newton.  
62 Ward, Ellen.



- 145 Ward, Horace Walshman.  
45 Warren, Herbert Henry.  
357 Watson, Ernest Ansley.  
56 Whaite, Herbert Hoyle.  
41 Whitcombe, Harold Arthur.  
396 White, Eric Arthur.  
388 Wheeler, Harold Walter.  
432 Wheeler, Mabel.  
462 Whitby, Edward Vernon.  
465 Whitehouse, James.  
311 Wilkes, Samuel John Herbert.  
101 Wilkinson, Edmund.  
88 Wilkinson, Frederick.  
411 Wills, Mabel Annie.  
2 Williams, Norman Valentine.  
427 Wilson, George.  
449 Wilson, Grace.  
385 Winning, Theodore Norman.  
452 Wood, Denys Richard.  
408 Woodhouse, William.  
313 Woolf, Montague Sydney.  
392 Wright, Harry.  
258 Wright, Robert.  
191 Young, Francis Brett.  
346 Young, Sylvia Ellen.
-

## Students attending Classes during Session 1903-1904.

### STUDENTS IN SCIENCE, ARTS, AND COMMERCE.

Adams, Mary  
Adams, Thomas Herbert  
Addenbrooke, Evelyn May  
Airston, Alexander Jonathan  
Alcock, Emma  
Alexander, Justice Featherstone  
Haugh

Allday, Gordon Harry  
Allen, Charles Braden  
Allen, Frank  
Almond, James Birkett  
Anderson, Edward Bertram  
Andrews, Guy Norman  
Ansell, Mabel Jessie  
Ashford, Lydia Bright  
Ashley, Wilfred Severne  
Ashmore, William Gerald  
Ault, Wilfrid Beaumont  
Austin, Harold Austin  
Austin, Norman Arthur

Bailey, Florence Emily  
Bailey, Sidney Arthur  
Ball, Leslie Hassall  
Bainbridge, May Eveline  
Baker, Winifred Gertrude  
Baldock, Norman Shortman  
Bamford, Cyril Joseph  
Barker, Percy Frederic  
Barlow, Thomas Morgan  
Barnes, James Hector  
Barnes, William Henry  
Barnsley, Frank Herbert  
Barrett, Helen Mary  
Barrett, Norman Cope  
Barrow, Fred

Bartleet, Bryan Douglas  
Basterfield, Stewart  
Bate, Margaret Elizabeth  
Bates, Frank  
Bates, John Leslie  
Bauer, Grace Martha  
Bayliss, Jessie Sproat  
Bean, John Harper  
Bennitt, Edith Gertrude  
Bennitt, Margaret  
Berry, Thomas Henry  
Betts, Arthur Oliver  
Bingham, Josephine  
Bisseker, Ernest George  
Blackwell, Norman George  
Blaker, Reginald Bromhead  
Bland, Wilfred  
Blurton, Walter Robert  
Boeddinghans, Emma  
Bolger, David Joseph  
Booth, Elsie M.  
Booth, Mrs. W. H.  
Boothby, John Norman  
Bottomley, Arpoid Duthoit  
Bowater, John  
Bredin, James Crawford  
Brett, Clara Emily  
Brigham, Bernard Harry  
Brown, Oliver Whitehead  
Brown, Ronald Adrian  
Browning, Samuel  
Buckley, William Steers  
Burchell, Anne Lilian  
Burgum, Lilian Emily  
Bushill, Thomas William  
Butler, Lancelot Walker  
Buttery, Howard Campbell

- Cadbury, Helen  
 Cadbury, Mary Isabel  
 Caddick, A. Helen  
 Caddick, Helen  
 Cantrell, Emily Haywood  
 Carder, Frederick William  
 Carmichael, Frank Bernard  
 Castle, Wallace Howard  
 Cattell, Marguerite Pountney  
 Catterson-Smith, John Keats  
 Cave-Browne-Cave, Nigel Frederick  
 Chance, Frances E.  
 Chatwin, Noël James  
 Cheshire, William Donald  
 Clarke, Norman Carlisle  
 Clewlow, Frank Dawson  
 Coleman, Alfred  
 Coley, Clara  
 Collier, Francis John  
 Comrie, Kenneth Gordon  
 Cook, Leonard Reynolds  
 Cox, Arthur Hubert  
 Cox, General  
 Cox, Hubert  
 Cox, Mary  
 Creak, Edith Elizabeth Marie  
 Creswell, Arthur Wilfred  
 Dance, Leonard Edward  
 Darby, Alfred James  
 Davies, Basil Redfern  
 Davies, Clara Blanche  
 Davies, Percy Megrick Morris  
 Davison, Lizzie  
 Descombes, Marie Elysée Alphonse  
 Dickinson, Ralph  
 Done, Edward  
 Downes, Eveleen Mary Hetty  
 Dowson, Richmond  
 Drew, Julius Cæsar Lawson Thomas  
 Duncan, Emily Grace  
 Dunstall, Marianne Caroline  
 Dyson, Arthur  
 Edge, Cyril Barrows  
 Edwards, Reginald Howard  
 Ehrhardt, William Charles Leslie  
 Ellaway, Mrs. M.  
 Elliot-Smith, Violet  
 Ellison, Harry  
 Ellison, John  
 Evans, Alfred Dudley  
 Fairbairn, George  
 Falk, Annie  
 Faulkner, William  
 Fidoe, John Walter  
 Fiedler, Mrs. H. G.  
 Findley, Albert Edward  
 Finimore, Frederick William  
 Fisher, William Ernest  
 Fitter, Sidney Harry  
 Ford, Jane Williamson  
 Foster, Sydney Le Neve  
 Fowler, William Howard  
 Freeman, Amy Helen  
 Freeman, George  
 Freer, Harold Henry  
 Galloway, David Robertson  
 Galloway, Mabel  
 Garratt, Charles Edgar  
 Gaskell, Leonard Sedgrove  
 Georges, Anna  
 Gibbins, Ada  
 Gibson, Joseph  
 Glover, Leonard James  
 Goodman, Dorothy  
 Goodman, Edith  
 Goodman, Janet  
 Goodwin, Leonard Bartrum  
 Gordon, Charles Gordon Snowden  
 Gould, Reginald Walter  
 Grabham, Charlotte Rose  
 Granger, Allan  
 Green, George Wilfrid Acland

Greensill, George Bamford  
Greenway, Noel Wilson  
Grew, Herbert Weston  
Grierson, Ronald  
Gront, Sydney

Hadley, Miss A. M. A.  
Hager, Ida  
Hahn, Edith Elizabeth  
Hale, Harry William  
Hall, Edward White  
Hall, Kate  
Handley, Marion  
Hannah, Emily Clair  
Harding, Mrs. C.  
Hargreave, Edith Lucy  
Harper, Frank Percy  
Harris, Albert  
Harris, Arnold William Elsmere  
Harrison, Ernest Claude  
Harrison, William Jerome  
Hartley, Mary Forrest  
Hartley, Walter Ronald  
Harvey, George Ernest  
Hawkes, Margaret Melland  
Hawkins, Francis Ferrer  
Heald, Percy Batchelor  
Heathcote, Ernest William  
Hemming, Anthony E.  
Hendriks, Mrs. H.  
Henley, Francis Robert  
Henman, Edwin Girdham  
Henman, Winifred Matilda  
Henry, Albert Ernest  
Herbert, Gerald Oscar  
Hess, Fule  
Hill, Clarinda Baillie  
Hill, Dr. G. Leonard  
Hill, Sydney Ashton  
Hill, Victor Baillie  
Hollister, George John Selkirk  
Holroyd, John Othie

Hooson, Thomas James Stewart  
Horsburgh, Harry  
Hough, Sidney John  
Hoyte, Ethel Mary  
Hubbard, Harry  
Hudson, George Henry Ernest  
Humphreys, Margaret Winifred  
Hutchinson, Edith Mabel  
Hutchinson, Gladys Lucy

I'Anson, Antony Atkinson  
Whitfield

Iles, Dorothy  
Ilfie, Arthur Norman  
Illidge, Arthur Ernest  
Imms, Augustus Daniel  
Impey, William White  
Isaac, Francis Swinton

James, Albert Richard  
James, Walter Richmond  
Jennings, Helena Mary  
Jennings, Louisa  
Jewsbury, William  
Johnson, Herbert Stone  
Jones, Ernest Reginald  
Jones, George James  
Jones, Matilda  
Jones, Oliver  
*Jones, William Vincent*  
Joseph, Evelyn

Katz, Jacques  
Kelley, Arthur Joseph  
Kenwick, Miriam Ida  
Kershaw, Lawrence William  
Khayatt, Shakir  
King, William Gavin  
Kingstone, John James  
Knight, Arthur Noel Stanley  
Knowles, Norman  
Knyvett, Rose Margaret

Lambourne, Alfred William  
 Lathbury, George Lionel  
 Lawton, Frederick  
 Leary, Sydney Dore  
 Lee, Winifred  
 Lees, John  
 Leigh, Cecil  
 Leighton, Bernard James  
 Leon, Patrice Sylvester  
 Levick, John  
 Lillie, Dennis Gascoigne  
 Lindsay, Miss L.  
 Lineham, Andrew Wood  
 Littleboy, Wilfred Ernest  
 Lloyd, Alfred  
 Lloyd, Lewis  
 Loach, Arthur William  
 Lodge, Francis Brodie  
 Long, Alfred Ernest Marmaduke  
 Long, Thomas Edmund  
 Louch, Joyce  
 Loveridge, Percy Norman  
  
 Manning, Ruth Vernon  
 Mansfield, Leslie Warner Rendall.  
 Manton, Joseph  
 Marlow, Mrs. C. F.  
 Marsh, Norman  
 Marshall, Arnold Ernest  
 Marshall, Francis Edith Victoria  
 Marston, William Hornblower  
 Martineau, Philip Edgar  
 Matthison, Jessie  
 McCrindle, James Daig  
 Meachem, Frederick George  
 Mear, Vernon Edward  
 Mears, Frank Charles  
 Mellor, John Leslie  
 Meyer, Mrs. J. H. R.  
 Millar, Edmund Theodore  
 Mills, Ernest James  
 Milward, Frederick Victor

Minor, Alice Julia  
 Mitsui, Taka Kiyo  
 Moncur, James  
 Moon, Melita Mary Annie  
 Morgan, Albert Henry  
 Morgan, Caroline Edith  
 Morley, Edith Mary  
 Morley, Francis Howard  
 Mottram, Henry Prince  
 Moxon, James Holt  
 Murphy, Carlo Borromeo  
  
 Neumann, Carl Wilhelm Gottfried  
     Lousi  
 Nicholls, Edgar Allen  
 Nicholls, John Gordon  
 Nicholson, Rita Caroline  
 Norris, Albert Victor Reginald  
  
 Odell, George William  
 Odum, Algernon Ashley  
 Oliver, Brian Edward  
 Oliver, Rupert  
 Oppermann, Percival Herrman  
 Orwin, John Monkhouse  
 Overton, Elsie Mai  
 Owen, Gertrude Emily  
  
 Page, Reginald Percival  
 Parker, Walter Faraday  
 Parker, Jessie Eliza  
 Parker-Jervis, Bridget  
 Parker-Jervis, Evelyn  
 Partridge, Gertrude Mary  
 Patching, Margery  
 Pattison, George Raymond  
 Payton, Margaret Evelyn  
 Pearce, Violet Thekla  
 Pearshouse, Albert Henry  
 Perkins, Charles William  
 Petter, Herbert  
 Petter, Mrs. H.

- Peyton, Mrs. R.  
 Phillips, Manasseh  
 Phillips, Percy  
 Phillips, Thomas David  
 Picken, Thomas William  
 Pipe, Thomas Sylvanus  
 Platten, Frank  
 Player, Edward  
 Poole, Granville  
 Poynting, Arthur  
 Poynting, Hilda  
 Probin, Henry  
 Proctor, William  
 Proctor, William Henry Warden  
 Pugh, Laura Williams  
 Purslow, Alice Maul  
 Purslow, Mrs. C. E.  
 Pym, Francis Harding Sydney  
  
 Raine, Sydney  
 Rathbone, Florence  
 Reade, Charles James  
 Richards, Frederick Charles  
 Richardson, Bernard Seeley  
 Ridgway, Arthur Clifford  
 Riley, William Joseph  
 Ritchie, George Thwaites  
 Roberts, John W.  
 Roberts, Samuel Arthur  
 Robertson, John  
 Rogers, Thomas Ibbotson  
 Rollinson, Harry Dudley  
 Rushton, William Alfred  
 Russell, Clive  
 Ryland, Chawner  
  
 Safa, Philip George  
 Sambrook, Ernest John  
 Samson, George Wilfred  
 Sanders, Thomas Henry  
 Saunders, George Ernest  
 Saunders, Lucy Metta  
 Schnurmann, Harry Vestor  
  
 Schurhoff, Mrs. G.  
 Scott, Gilbert Shaw  
 Scott, Percy Eliot  
 Scott, Walter  
 Seward, Frederick William  
 Sharples, Elizabeth Mand  
 Shay, Harold Edgar  
 Sherrey, Ernest Henry  
 Shephard, Ralph Frank  
 Short, Frederick Charles  
 Short, William Charles  
 Shuttleworth, Alfred  
 Silander, August Alexander  
 Simpson, Frederick Dudley  
 Slater, Alice Celia  
 Smart, John Deiro  
 Smith, Charles Gordon  
 Smith, Frank James  
 Smith, Frederick Arthur  
 Smith, Herbert Spencer  
 Smith, Ivan Joyce  
 Smith, Joseph Thomas  
 Smith, Marmaduke Fritz  
 Smith, Norman Elliott  
 Sonnenschein, Edward Jamie  
 Squires, Reginald Graham  
 Stacey, Gerald Frank  
 Stanford, Robert Viner  
 Stanton, Harold Westwood  
 Still, William  
 Stokes, Mary Alice Ellinor  
 Stone, Alice Maria  
 Stone, Victor Aylett  
 Stoney, Malcolm Percy  
 Stoward, Frederick  
 Stuart, Murray  
 Suckling, Marianne E.  
 Swinden, Mrs.  
  
 Tanfield, Doylah  
 Taylor, Charles Henry  
 Taylor, John Henry

Taylor, Joseph Andrew  
 Teague, Francis Clifford Dyche  
 Thomas, Basil Lewis  
 Thomas, Dora Retallack  
 Thompson, Charles Joseph  
 Thompson, Herbert Bryan  
 Timmins, George Dickinson  
 Trobridge, Charles Rayner  
 Tryon, Claude  
 Tunbridge, Edward William  
 Tunstall, Winifred Maria  
 Turner, William Ernest Stephen  
 Twiss, Douglas Frank  
 Twist, George Shelley

Vaudrey, Helen Christabel

Wagner, Mrs. J. F.  
 Wagner, Maggie  
 Waldron, Ethel Annie  
 Wale, Bernard Nixon  
 Walford, John  
 Walker, Arthur Oldfield  
 Walker, Frederick Earle  
 Ward, Ellen  
 Wareham, Herbert  
 Warriner, Albert Henry  
 Warth, Thomas

Warth, William Frederick  
 Watkin, Adelaide Maud  
 Watson, Ernest Ansley  
 Watts, John Edmund Parry  
 Welch, Francis Warlow  
 Wenman, Norman Parkes  
 Westwood, Henry Samuel  
 Wetherall, Clara Elizabeth  
 Whalley, Bertha  
 While, Albert Julian  
 Whitecombe, Harold Arthur  
 White, Sydney John  
 Whitehouse, James  
 Wilkes, Samuel John Herbert  
 Willecox, Frank Ernest  
 Willis, Reginald  
 Willson, Alfred Charles  
 Wilson, Leslie  
 Wilton, John Douglas Middleton  
 Winning, Theodore Norman  
 Withers, Ernest Shaftesbury  
 Wood, Denys Richard  
 Woodhall, Frank William  
 Woodhouse, William  
 Wragg, Harriet  
 Wright, Albert Howard  
 Wright, Elizabeth  
 Wright, Eva

## STUDENTS IN MEDICINE.

Adams, John  
 Aitken, Frederick Watson  
 Aitken, Robert Wallace  
 Alldridge, William E.  
 Allen, Richard Clayton  
 Astbury, Reginald Hudson  
 Aston, William  
 Austin, John Staines  
 Aviss, William George  
 Ayres, William

Bailey, Charlotte  
 Bailhache, Violet Irene  
 Ball, Lawrence  
 Ballantyne, Simon Alexander  
 Barrs, John Harry  
 Beazeley, Tom William  
 Blaxley, Thomas Tebbutt  
 Boome, Edward James  
 Boulton, Winifrid Louisa  
 Boulton, Elsie Janet

Bowater, William  
 Bracey, Herbert Charles Horace  
 Browning, Harold Gordon  
 Brown, Charles Sydney  
 Bryce, William Alexander  
 Bunting, Edward Lancelot  
 Burman, Hugh Wesley.

Cannan, Margaret Kennedy  
 Carruthers, Walter Donald  
 Clapham, Katharine Lilian  
 Clare, Thomas Charles  
 Clark, Hilda  
 Clarke, Mary  
 Coleman, Charles John  
 Collins, Hilda Mary  
 Cook, William  
 Cordon, Archibald  
 Crouch, Richard Halford Winterley  
 Crowe, Henry Neville  
 Cruickshank, Lewis Davie  
 Curle, Reginald

Dale, John  
 Davies, Fred Thomas Hollway  
 Dawes, Edward Peter Joseph  
 Dawson, Joseph Bernard  
 Dawson, Thomas  
*Dembski, Louis Arthur Lloyd*  
 De Vall, Alfred Ernest  
 Doubleday, John Lloyd  
 Dudgeon, Sophia

East, Edwin Charles  
 Edwards, John Selwyn  
 Eglington, Clara  
 Everill, Sydney Frank Henderson  
 Evans, Harvey Atkins

Fenton, James  
 Fisher, Frederick Pearson  
 Freer, Horace Wilberforce

Gardner, H. Willoughby  
 Garrett, Mary Eva Cecilia  
 Gaunt, Eric Thomas  
 Gaunt, John Kennedy  
 Gettings, Harold Salter  
 Glissan, Francis Reginald D'Alton  
 Goodwin, Bernard Grainger  
 Greener, Helen Gertrude

Haake, Olga  
 Hadley, Leonard Leigh  
 Halpin, Robert Edgar  
 Hankinson, Jessie  
 Harmar, Cuthbert Izon  
 Harris, Joseph Cecil  
 Harris, William  
 Hassall, Gerald Wright  
 Hawley, Sidney Herbert  
 Hayes, Lionel Chattock  
 Hayward, Charles William  
 Hincks, Arthur Cecil  
 Hird, Alfred Ernest Wilson  
 Hodgson, Robert  
 Hollick, Edward Henry  
 Holman, George  
 Hopkins, Winifred Mary Gertrude  
 Horton, John Joseph  
 Horton, William Claude  
 Houghton, William Cuthbert  
 Huddleston, George James Proctor  
 Huddleston, Thomas

Iles, Charles Edward

Johnson, Claude  
 Johnson, Irene  
 Johnston, Thomas Reginald St.  
 Jones, Ernest Victor  
 Jones, George Austin  
 Jones, Harold Bruce  
 Jones, James Thomas Gwynne  
 Jones, William Watkiss  
 Jotham, George Frederick



- Knott, John Robertson  
 Lawrence, Sidney Cameron  
 Lindsay, Creighton Hutchinson  
 Lloyd, Bertram Arthur  
 Lowe, Eleanor Christine  
 Loxton, William Arthur  
 Mackey, Leonard George Joseph  
 Mallory, George Kennaway  
 Mason, Philip James  
 McCready, Violet Maud  
 McGing, Michael  
 Middleton, Francis George  
 Mills, George Percival  
 Mogg, John Leslie Heaven  
 Mold, George Henry Chavasse  
 Moon, George Bassett  
 Moore, Rowland  
 Newbold, Muriel Osborn  
 Newton, Arthur Harry  
 Oddie, Arthur Brearley  
 O'Dowd, Francis Bridge  
 Orford, R. J.  
 Parker, William Gibson  
 Penrose, Nevill Coghill  
 Phipson, Edward Selby  
 Pickerill, Henry Percy  
 Pickup, Arthur McLean  
 Pickup, William Howard  
 Price, Horace John D'Arcy Gerrard  
 Price, Sydney Edgar  
 Pugh, Laura Williams  
 Quirke, Michael Joseph  
 Ramsay, Harriette  
 Ravenhill, Thomas Holmes  
 Retallack, William Charles  
 Ritchie, John Lichtenstein  
 Roberts, Walter Rowland Southall  
 Rollason, George  
 Rollason, Norman John Lancelot  
 Rollinson, Harry Dudley  
 Rose, Robert  
 Ross-Watt, George Douglas  
 Russell, George Andrew  
 Sanipson, Herbert Henry  
 Sanders, Arthur Addison  
 Sawyer, James Edward Hill  
 Sansom, Wilfrid Tom  
 Seymour, James Alfred  
 Shilton, Frederick Walton  
 Sisam, William  
 Smith, Arthur John  
 Smith, David Priestley  
 Snoad, Francis George  
 Steinthal, Theodora Marina  
 Stone, M. Grace  
 Sullivan, Patrick Arthur  
 Tangye, Claude Edward  
 Terry, Harold Cavins  
 Thomason, Henry Philip  
 Thompson, Charles Joseph  
 Thompson, Frederick  
 Thompson, Rupert Wesley  
 Thomson, Gerald John  
 Thwaite, Harold  
 Tregea, William  
 Turner, Barbara  
 Waldron, Ethel Annie  
 Walker, Spencer Graham  
 Walpole, Ida May  
 Walsh, Ethel Elizabeth  
 Walsh, Fred Newton  
 Ward, Horace Walshman  
 Warren, Herbert Henry  
 Weaver, Alfred Ernest Remmett  
 Webb, Martha Beatrice  
 Webb, Samuel George  
 Whaite, Herbert Hoyle

Whitby, Edward Vernon  
 Whitecombe, Harold Arthur  
 Wild, George Kerry  
 Wilkinson, Edmund  
 Wilkinson, Frederick  
 Wilkinson, Kenneth Douglas

Williams, Norman Valentine  
*Williams, Tudor Lloyd*  
 Wilson, Horace Bagster  
 Young, Francis Brett  
 Youngson, James S.

### STUDENTS IN THE DAY TRAINING COLLEGE.

Acton, Harriett  
 Addis, Margaret Isabel  
 Allen, Rhoda  
 Atkinson, Joseph

Baker, John Edward  
 Baker, William Thomas Smith  
 Ball, Susan  
 Barker, Rosa  
 Bartlam, Rose Valeria  
 Belfitt, Eleanor Constance  
 Belton, Francis Nora  
 Belton, Nelly Gwendolyn  
 Bentley, Raymond Pinder  
 Bill, Francis  
 Bishop, Ernest William  
 Bleby, Mary Louise  
 Blewett, Richard Rodda  
 Boby, Eleanor Katherine  
 Brain, Charles Kimberlin  
 Brame, Dorothy Phyllis  
 Bristow, Ernest  
 Brown, Margaret  
 Buchanan, Mary McFarlane  
 Buckle, Ellen Elizabeth  
 Bunn, Elsie Dora  
 Burgess, Robert  
 Butler, Arthur Wellesley

Campion, Ethel Elizabeth  
 Chattaway, Ethel  
 Churn, Jessie  
 Clarke, Florence Gertrude  
 Clarke, Frank

Collingwood, Annie Holford  
 Cooke, Fred  
 Cutting, Ethel Sophia  
 Davies, Dora Anne  
 Davies, Ellen Elizabeth  
 Davis, Beatrice Alice  
 Davis, Elsie Annie  
 Davis, Percy  
 Deeley, Criss Parsonage  
 Dodsworth, Ernest Howard  
 Douglas, Helena  
 Du-Bois, John Hubert Valentia  
 Dudley, Ethel Matilda

Eastman, Frank Henry  
 Eckersall, Rose Elizabeth  
 Eldridge, John Edgar  
 Emery, Eleanor Park  
 Ensor, Ainslie Jackson  
 Everitt, William Arthur

Faulkner, Mabel Miles  
 Finney, Lizzie Ellen  
 Fisher, Alice Laura  
 Foulkes, Clara  
 Freeman, Emma  
 Frizell, Edith Annie

George, Lilian Emilie  
 Goode, John Frederick  
 Grattan Edith  
 Gray, Elsie Lavinia  
 Gregory, Bernard Charles  
 Grove, Emily Florence

Haines, Harry  
 Hall, John William  
 Hancox, Florence Martha  
 Harbutt, Lilian Maud  
 Harbutt, Violet Clarice  
 Harper, Margaret Gertrude  
 Hemming, Alice  
 Hemmings, Clara  
 Heptinstall, Walter  
 Hickmans, Evelyn Marion  
 Hill, Dorothy Arden  
 Hill, Edith Millicent  
 Hill, Muriel Bertha  
 Hillis, Lillian Gertrude  
 Hilton, Herbert  
 Hinks, Albert Edward  
 Hipkins, John Charlton  
 Hodder, Beatrice  
 Hofton, Nellie  
 Hollick, Bertram George Richard  
 Holloway, Ettie Gertrude  
 Horne, William Charles Percy  
 Horton, Edith Henrietta  
 Howell, Sidney Percival  
 Humphreys, Percy James  
 Hunt, Florence Elizabeth  
 Hurlston, Alice

Inglis, Ruth  
 Irvine, Louise Jane

Janney, Isabel Hannah  
 Jeavons, Clara  
 Jennings, Edith Helena  
 Jones, Wilfrid  
 Jope, Ethel Mary

Lamb, James Victor  
 Landon, Hilda Mary  
 Laughner, Ethel Marion  
 Laurens, Evelyn Tinel  
 Lawley, Annie  
 Lawton, Hubert Ralph

Ledgerwood, Hugh  
 Lovatt, Arthur  
 Lymbery, Percy Arthur Roe

Mackintosh, Christina Alice  
 Madeley, Ada Alice  
 Mason, Annie  
 Mason-Jones, Archibald John  
 Mason, Lilie  
 Mason, Lottie Beatrice  
 Massie, Annie Christina  
 Masters, Gertrude Emma  
 McKinnell, Flora Eastaway  
 McLauchlan, Margaret Agnes  
 McNaughton, Sarah Margaret  
 Minahan, Rosa  
 Moore, Harriet Myra  
 Morgan, Catherine  
 Mounter, Louisa Elizabeth  
 Murray, John Claude

Newton, George Coleman  
 Newton, Herbert George

Owen, Annie Marie

Page, Arthur Arnold  
 Page, Lewis Charles  
 Palmer, Herbert Frederick  
 Parker, Norah  
 Parry, Ethel  
 Parry, Lilian  
 Pettifor, Charles Ernest  
 Philips, Amy Lilian  
 Pinchbeck, Albert  
 Powell, Emmeline Annie  
 Priestman, Lilian Ada

Quance, Sydney James  
 Quinney, Horace

Regan, John  
 Relph, Amy Gwendoline  
 Ridley, Elsie Elizabeth

Robbins, Ethel Evangeline  
Roberts, Ada May  
Robson, Mary Eveline Lindsay  
Roderick, Fred  
Roscoe, Edith  
Rose, Frances Saxelby  
Russell, Samuel Charles

Saunders, Agnes Eliza  
Shackleton, William  
Showell, Christine  
Showell, Ida Gertrude  
Silk, Ethel Mary  
Silvester, Clara Emily  
Smith, Ethel Mabel  
Smith, Mabel  
Smith, Mary Eliza Beatrice  
Squire, Amy Kathleen  
Stackhouse, Percy Charles  
Stanton, Herbert Julian  
Stewart, Eliza Ann  
Street, Lizzie  
Swain, Beatrice Nellie

Taylor, Ada Kate  
Taylor, Dora Kitty  
Taylor, Matilda  
Taylor, Venetta Lillian  
Thomas, Elsie Lilian Poyser  
Thompson, Roland

Thompson, Janet  
Thorneycroft, Frederick James  
Tidmarsh, Elsie Isabel  
Timmins, Leonard Graham  
Timmins, Winifred Ethel  
Trego, Helen Beatrice  
Tremlett, Henrietta Grigg  
Turner, Gertrude  
Turner, Millicent

Walker, Florence Margaret  
Walker, Richard  
Wallace, Mary Grace  
Wheeler, Harold Walter  
Wheeler, Mabel  
Whitehouse, Richard Henry  
Whitehouse, Gertrude Sarah  
White, Eric Arthur  
Willatt, Evelyn  
Wills, Mabel Annie  
Wilson, George  
Wilson, Grace  
Wilson, Henry Maurice  
Woolf, Montague Sydney  
Wootton, Lillian May  
Woolley, John  
Wright, Ethel Kate  
Wright, Harry  
Wright, Robert  
Young, Sylvia Ellen

## UNIVERSITY EXAMINATIONS.

SESSION 1903-4.

## FACULTY OF SCIENCE.

JUNE, 1904.

## I.—DEGREE OF DOCTOR OF SCIENCE.

*(a) Official.*

Miller, James.

Wright, William.

*(b) Under Ordinary Regulations.*

Watts, Francis.

## II.—DEGREE OF MASTER OF SCIENCE.

*(a) Official.*

Robertson, Edward Heton.

*(b) Under Ordinary Regulations.*

Barrow, Fred (Chemistry).

Done, Edward (Chemistry).

Thompson, Herbert Bryan (Chemistry).

Turner, William Ernest Stephen (Chemistry).

## III.—DEGREE OF BACHELOR OF SCIENCE.

*(a) Official.*

Pope, Thomas Henry.

*(b) Associates.*

Badger, Alfred Bernard.

Stacey, William Henry.

*(c) Under Ordinary Regulations.*

Honours Division.

Cox, Arthur Hubert (Chemistry and Geology).

Division II.

Ault, Wilfrid Beaumont.

Barnes, James Hector.

George, Lilian Emilie.

Division III.

Thompson, Charles Joseph.

*Passed in part of the Examination.*

- Bishop, Ernest William (Metallurgy, *Subsidiary*).  
 Bristow, Ernest (Mathematics, Botany, *Subsidiary*).  
 Clarke, Frank (Psychology, *Subsidiary*).  
 Haines, Harry (Mathematics Pure, Part I., and Mathematics Applied, Part I., *Principal*, Physics, Part I., *Subsidiary*).  
 Hickmans, Evelyn Marion (Mathematics, *Subsidiary*).  
 Landon, Hilda Mary (Physics, *Principal*, Mathematics, Part I., Psychology, *Subsidiary*).  
 Page, Arthur Arnold (Psychology, *Subsidiary*).  
 Stanton, Herbert Julian (Mathematics, Part II., *Subsidiary*).

## IV.—DEGREE OF BACHELOR OF SCIENCE IN ENGINEERING.

## Division I.

Roberts, Samuel Arthur.

## V.—INTERMEDIATE EXAMINATION.

## Division I.

Dyche-Teague, Francis Clifford.  
 Owen, Gertrude Emily.  
 Smith, Charles Gordon.

## Division II.

Blackwell, Norman George.  
 Blewett, Richard Rodda.  
 Eastman, Frank Henry.  
 Gregory, Bernard Charles.  
 Hickmans, Evelyn Marion.  
 Jones, Wilfrid.  
 Lawton, Hubert Ralph.  
 Nicholls, Edgar Allen.  
 Pinchbeck, Albert.  
 Stackhouse, Percy Charles.  
 Stanton, Herbert Julian.

*Completed Examination.*

Page, Arthur Arnold.

*Passed in part of the Examination.*

- Baker, John Edward (Physics, Biology, Education).  
 Deeley, Criss Parsonage (Mathematics, Physics, Chemistry).  
 Goode, John Frederick (Physics, Biology, Education).  
 Hale, Harry William (Mathematics, Physics, Chemistry).  
 Hinks, Albert Edward (Physics, Biology).

Horne, William Charles Percy (Physics, Education).  
 Parry, Ethel (Mathematics, Physics, Chemistry).  
 Silvester, Clara Emily (Mathematics, Physics, Chemistry).  
 Walker, Arthur Oldfield (Physics, Chemistry, Biology).  
 Wright, Robert (Mathematics, Physics).

## VI.—THIRD ENGINEERING EXAMINATION.

## Division I.

Pipe, Thomas Sylvanus.  
 Poynting, Arthur.  
 Tunbridge, Edward William.

## Division II.

Heathcote, Ernest William.  
 Moncur, James.

*Passed in part of the Examination.*

Harris, Arthur William Elsmere (Engineering).

## VII.—SECOND ENGINEERING EXAMINATION.

## Division I.

Fisher, William Ernest.

## Division II.

Herbert, Gerald Oscar.

*Passed in part of the Examination.*

Airston, Alexander Jonathan (Engineering, Pure Mathematics, Metallurgy).  
 Barlow, Thomas Morgan (Engineering, Applied Mathematics, Metallurgy).  
 Horsburgh, Harry (Pure Mathematics).  
 Knight, Arthur Noel Stanley (Engineering, Metallurgy).  
 Wilkes, Samuel John Herbert (Applied Mathematics, Engineering, Metallurgy).

## VIII.—FIRST ENGINEERING EXAMINATION.

## Division I.

Green, George Wilfrid Acland.  
 Ritchie, George Thwaites.  
 Smart, John Deiro.  
 Watson, Ernest Ansley (*Exhibition*).

## Division II.

Cave-Browne-Cave, Nigel Frederick.  
 Hill, Sydney Ashton.  
 Hough, Sydney John.  
 Kershaw, Lawrence William.  
 Taylor, Charles Henry.

*Passed in part of the Examination.*

Blaker, Reginald Bromhead (Engineering).  
 Greenway, Noel Wilson (Physics, Chemistry, Engineering).  
 Harrison, Ernest Claude (Physics, Chemistry, Engineering).  
 Stacey, Gerald Frank (Chemistry, Engineering).

## IX.—FIRST EXAMINATION FOR THE DEGREE IN MINING.

## Division II.

Whitehouse, James.

## X.—DIPLOMA IN BREWING.

## Division I.

King, William Gavin.  
 Lathbury, George Lionel.  
 Millar, Edmund.  
 Oliver, Brian Edward.

## Division II.

Jones, William Vincent.  
 Mears, Frank Charles.  
 Ryland, Chawner.

## XI.—DIPLOMA IN MINING.

Fidoe, John Walter.

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SEPTEMBER, 1903.

INTERMEDIATE EXAMINATION FOR THE DEGREE OF B.Sc.,  
 AND  
 FIRST AND SECOND EXAMINATIONS FOR THE DEGREE OF B.Sc.  
 IN ENGINEERING.

*SUCCESSFUL CANDIDATES.*

## INTERMEDIATE EXAMINATION FOR THE DEGREE OF B.Sc.

Bishop, Ernest William (Mathematics).  
 Clarke, Frank (Mathematics).  
 Findley, Albert Edward (Mathematics).  
 Humphreys, Percy James (Mathematics).



FIRST EXAMINATION FOR THE DEGREE OF B.Sc. IN  
ENGINEERING.

Herbert, Gerald Oscar (Mathematics).  
Knight, Arthur Noel Stanley (Physics).  
Scott, Gilbert Shaw (Physics).

SECOND EXAMINATION FOR THE DEGREE OF B.Sc. IN  
ENGINEERING.

Moncur, James (Mathematics).

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FACULTY OF ARTS.

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JUNE, 1904.

I.—DEGREE OF MASTER OF ARTS.

Wodehouse, Helen Marion.

II.—DEGREE OF BACHELOR OF ARTS.

(a) *Official*.

Joyce, Anne Hollingworth.

(b) *Under Ordinary Regulations*.

Division I.

Payton, Margaret Evelyn (with Distinction in English Literature  
and Roman History).

Division II.

Mackintosh, Christina Alice.

Mason, Lottie Beatrice.

Moon, Melita Mary Annie.

*Completed the Examination*.

Wragg, Harriet.

III—FIRST EXAMINATION IN THE SCHOOL OF MODERN  
LANGUAGES.

Division I.

Freeman, Amy Helen.

IV.—SECOND YEAR ARTS EXAMINATION.

Ball, Susan (English, Latin, French, Psychology).

Bates, John Leslie (English, Latin).

Bleby, Mary Louise (English, Latin, French, Psychology)  
(*Bracketted for Exhibition*).

Butler, Arthur Wellesley (French, European History, Psychology,  
Logic).

- Frizell, Edith Annie (English, Latin, French).  
 Irvine, Louise Jane (English, Latin, French, Psychology).  
 Katz, Jacques (English, Latin, German, Mathematics, Philosophy).  
 McKinnell, Flora Eastaway (English, Latin, French, Psychology).  
 Minahan, Rosa (Latin, French, Roman History, Psychology).  
 Murray, John Claude (Latin, French, Mathematics).  
 Overton, Elsie Mai (English, Latin, French, German).  
 Smith, Mary Eliza Beatrice (English, Latin, French, Psychology)  
     *(Bracketted for Exhibition)*.  
 Taylor, Matilda (English, Latin, French, Psychology).  
 Taylor, Venetta Lillian (English, Latin, French, Psychology).  
 Woolf, Montague Sydney (English, Latin, German).

## V.—INTERMEDIATE EXAMINATION.

## Division I.

- Ashley, Wilfred Severne (*Bracketted for Exhibition*).  
 Bleby, Mary Louise.  
 Burchell, Lilian Anne.  
 Hartley, Mary Forrest.  
 Loveridge, Percy Norman (*Bracketted for Exhibition*).  
 Murray, John Claude.  
 Parry, Lilian.  
 Smith, Mary Eliza Beatrice.  
 Taylor, Matilda.

## Division II.

- Ball, Susan.  
 Butler, Arthur Wellesley.  
 Dudley, Ethel Matilda.  
 Hipkins, John Charlton.  
 Irvine, Louise Jane.  
 Jope, Ethel Mary.  
 Leon, Patrice Sylvester.  
 Loach, Arthur William.  
 McKinnell, Flora Eastaway.  
 Morley, Edith Mary.  
 Robbins, Ethel Evangeline.  
 Taylor, Venetta Lillian.

*Completed the Examination.*

- Bates, John Leslie.  
 Frizell, Edith Annie.  
 Pettifor, Charles Ernest.  
 Shaw, Joseph Wright.

*Passed in part of the Examination.*

- Belton, Frances Nora (Latin, English, French, Logic).  
 Belton, Nelly Gwendolyn (Latin, English, French, Logic).  
 Buchanan, Mary McFarlane (Latin, English Literature, French, Education).  
 Campion, Ethel Elizabeth (Latin, English Literature, French, Logic).  
 Cutting, Ethel Sophia (Latin, English French, Logic).  
 Davies, Ellen Elizabeth (Latin, English, French, Logic).  
 Davis, Beatrice Alice (Latin, French, Logic, Education).  
 Hill, Edith Millicent (Latin, English, French, Logic).  
 Holloway, Ettie Gertrude (Latin, English, French, Logic).  
 Hunt, Florence Elizabeth (Latin, French, Logic, Education).  
 McNaughton, Sarah Margaret (English, French, Mathematics).  
 Phillips, Amy Lilian (Latin, English, French).  
 Priestman, Lilian Ada (English Literature, French, Logic).  
 Thomas, Elsie Lilian Poyser (Latin, English, French, Logic).  
 Tidmarsh, Elsie Isabel (Latin, English, French, Logic).  
 Tremlett, Henrietta Grigg (Latin, English, French, Education).  
 Wheeler, Mabel (Latin, English, French).

## VI.—DIPLOMA IN EDUCATION.

*(a) Higher Diploma.*

- Mackintosh, Christina Alice.  
 Plant, David Wallace.  
 Wyatt, Horace Graham.

*(b) General Diploma.*

- Hannah, Emily Clair.

SEPTEMBER, 1903.

## INTERMEDIATE AND SECOND YEAR EXAMINATIONS.

## INTERMEDIATE EXAMINATION.

## Division I.

- Freeman, Amy Helen (Harding Scholarship in German).

*Completed the Examination.*

- Moon, Melita Mary Annie.  
 Overton, Elsie Mai.  
 Weetman, William Charles Cumming.  
 Woolf, Montague Sydney.

*Passed in part of the Examination.*

Bates, John Leslie (Modern European History).

Frizell, Edith Annie (Logic).

Shaw, Joseph Wright (English).

#### SECOND YEAR EXAMINATION.

Moon, Melita Mary Annie (English, French, Latin).

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### FACULTY OF MEDICINE.

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JUNE, 1904.

#### I.—DEGREE OF DOCTOR OF MEDICINE.

(a) *Official.*

Stanley, John Douglas.

(b) *Under Ordinary Regulations.*

Lloyd, Jordan.

#### II.—DEGREE OF MASTER OF SURGERY.

*Official.*

Hewetson, John Thomas.

Wilson, Thomas.

#### III.—DEGREES OF BACHELOR OF MEDICINE AND BACHELOR OF SURGERY.

(a) *Associate.*

Nuthall, Alex. Wathen.

(b) *Past Students of Birmingham Medical School.*

Beazeley, Tom William.

Flewitt, Charles York.

Lawrence, Sidney Cameron.

Loxton, William Arthur.

(c) *Under Ordinary Regulations.*

Class I.

Weaver, Alfred Ernest Remmett (*Scholarship*).

Class II.

Cook, William.

Gettings, Cuthbert Keay.

Mackey, Leonard George Joseph.

## IV.—FOURTH EXAMINATION FOR THE DEGREES OF M.B., CH.B.

## Class I.

Rollason, Norman John Launcelot (*Scholarship*).

## Class II.

Aitken, Robert Wallace.  
Astbury, Reginald Hudson.  
Bunting, Edward Lancelot.  
Davies, Fred Thomas Hollway.  
Greener, Helen Gertrude.  
Hadley, Leonard Leigh.  
Horton, William Claude.  
Houghton, William Cuthbert.  
Jones, Harold Bruce.  
Ravenhill, Thomas Holmes.  
Warren, Herbert Henry.  
Wilkinson, Frederick.

## V.—THIRD EXAMINATION FOR THE DEGREES OF M.B., CH.B.

## Class I.

Wilkinson, Frederick (*Scholarship*).

## Class II.

Aitken, Robert Wallace.  
Astbury, Reginald Hudson.  
Austin, John Staines.  
Bunting, Edward Lancelot.  
Davies, Fred Thomas Hollway.  
Greener, Helen Gertrude.  
Hadley, Leonard Leigh.  
Hayes, Lionel Chattock.  
Hincks, Arthur Cecil.  
Horton, William Claude.  
Houghton, William Cuthbert.  
Jones, Harold Bruce.  
Ravenhill, Thomas Holmes.  
Roberts, Walter Rowland Southall.  
Rollason, Norman John Launcelot.  
Walker, Spencer Graham.  
Warren, Herbert Henry.

## VI.—SECOND EXAMINATION FOR THE DEGREES OF M.B., Ch.B.

## Class II.

Dale, John (*Scholarship*).

Fenton, James.

Penrose, Nevill Coghill.

Smith, David Priestley.

*Passed in part of the Examination.*

Boome, Edward James (Comparative Anatomy and Physiology).

Bracey, Herbert Charles Horace (Anatomy).

Gaunt, Eric Thomas (Comparative Anatomy and Physiology).

Gaunt, John Kennedy (Comparative Anatomy and Physiology).

Hincks, Arthur Cecil (Comparative Anatomy).

Mason, Philip James (Comparative Anatomy and Physiology).

## VII.—FIRST EXAMINATION FOR THE DEGREES OF M.B., Ch.B.

## Class II.

Adams, John.

Bailey, Charlotte.

Browning, Harold Gordon.

Edwards, John Selwyn.

Mold, George Henry Chavasse.

Moon, George Bassett.

Pickup, Arthur McLean.

Ritchie, John Lichtenstein.

Sampson, Herbert Henry.

Terry, Harold Cairns.

Waldron, Ethel Annie.

Whitby, Edward Vernon.

## VIII.—DEGREE OF BACHELOR OF DENTAL-SURGERY.

Pickerill, Henry Percy.

## IX.—DIPLOMA IN PUBLIC HEALTH.

## Parts I. and II.

Dawson, Thomas.

## JANUARY, 1904.

## EXAMINATION FOR THE DIPLOMA IN PUBLIC HEALTH.

## PART II.

(Completing the Examination.)

John Ronald Currie.

SEPTEMBER, 1903.

FOURTH, THIRD, AND SECOND EXAMINATIONS FOR M.B., CH.B.  
DEGREES.

## FOURTH EXAMINATION.

## Class I.

Weaver, Alfred Ernest Remmett.

## Class II.

Carruthers, Walter Donald.

Glissan, Francis Reginald D'Alton.

## THIRD EXAMINATION.

Austin, John Staines.

Crowe, Henry Neville.

Hadley, Leonard Leigh.

Jones, Harold Bruce.

## SECOND EXAMINATION.

Hincks, Arthur Cecil (Anatomy &amp; Physiology).

Johnson, Claude (Physiology).

Roberts, Walter Rowland Southall (Anatomy).

Smith, Arthur John (Anatomy).

## FACULTY OF COMMERCE.

JUNE, 1904.

## I.—SECOND EXAMINATION FOR THE DEGREE OF B. COM.

## Division I.

Bland, Wilfred.

Sanders, Thomas Henry.

## Division II.

Thomas, Basil Lewis.

*Passed in part of the Examination.*Edge, Cyril Barrows (Commerce, Accounting, Public Finance,  
Economic Analysis, French, French Institutions, German  
Institutions).

## II.—FIRST EXAMINATION FOR THE DEGREE OF B. COM.

*Passed in part of the Examination.*

Austin, Harold Austin (Commerce, Accounting, Geography).

Holroyd, John Othie (Commerce, Accounting).

Lawton, Frederick (Commerce, Accounting, French, German,  
British Institutions, Geography).

Mellor, John Leslie (Commerce, Accounting, European History,  
French, German, Geography).

Thomas, Basil Lewis (Geography).

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SEPTEMBER, 1903.

## FIRST EXAMINATION FOR THE DEGREE OF B. COM.

*Completed Examination.*

Edge, Cyril Barrows.

*Passed in part of the Examination.*

Thomas, Basil Lewis (Accounting).



**MATRICULATION EXAMINATION.**

JUNE, 1904.

Class I.

- Allcut, Edgar Alfred, King Edward's School, Five Ways, Birmingham.
- \*Bartindale, Edith Dora, Birmingham Pupil Teachers' Central Classes.
- Blackham, Charles, Private Tuition.
- Boswell, Norman Alexander, Wolverhampton Grammar School.
- Bottrill, Jessie Arnold, Leicester Pupil Teachers' Training College.
- Chaffer, Harold Russell, King Edward's School, Aston, Birmingham.
- Chattaway, Ethel, University of Birmingham (Day Training College).
- Clarke, Frederick Charles, Leicester Pupil Teachers' Training College.
- Crew, Ida, Leicester Pupil Teachers' Training College.
- Devey, May Frances, Birmingham Pupil Teachers' Central Classes.
- Doughty, Ethel May, Wolverhampton Pupil Teachers' Central Classes.
- Duncan, Emily Grace, University of Birmingham.
- \*Fitter, Lilian Emily, Birmingham Pupil Teachers' Central Classes.
- Float, Jane, Leicester Pupil Teachers' Training College.
- Float, Margaret, Leicester Pupil Teachers' Training College.
- Forbes, Mélanie Sophie, Private Tuition.
- Foyle, Ada Ellen, Birmingham Pupil Teachers' Central Classes.
- Freeman, Elsie, Birmingham Pupil Teachers' Central Classes.
- Gibson, Frances Millicent, King Edward's School, Aston, Birmingham.
- †Grazebrook, Owen Francis, Marlborough College.
- Green, Florence, Birmingham Pupil Teachers' Central Classes.
- Hall, John William, University of Birmingham (Day Training College).
- Hemming, Alice, University of Birmingham (Day Training College)
- §Humphreys, Humphrey Francis, King Edward's School, Bromsgrove.
- Janney, Isabel Hannah, University of Birmingham (Day Training College).
- Jolly, Irene Fanny, Leicester Pupil Teachers' Training College.
- Jones, Elsie Maud, Birmingham Pupil Teachers' Central Classes.
- †Kerr, Alexander Parker Thomas, King Edward's School, Five Ways, Birmingham.

\* Entrance Exhibition. † Qualified for Exhibition. § Sands Cox Scholarship

Knight, Marion Enid, Birmingham Pupil Teachers' Central Classes.  
 Lymbery, Percy Arthur Roe, University of Birmingham (Day Training College).

Madan, Annie Harriet, Birmingham Pupil Teachers' Central Classes.

Milward, Katie Millicent, Stamford House School, Edgbaston.

Parry, Kathleen, Aston Pupil Teachers' Central Classes.

Patching, Margery, University of Birmingham.

Perry, Victor Eugene, Handsworth Pupil Teachers' Central Classes.

Plant, Charles Henry, Stoneyhurst College.

Priest, Beatrice Adeline, Birmingham Pupil Teachers' Central Classes.

Ralph, Gwendoline Amy, University of Birmingham (Day Training College).

Reynolds, Elsie, Birmingham Pupil Teachers' Central Classes.

Ridley, Elsie Elizabeth, University of Birmingham (Day Training College).

Ridsdale, John Langford Disturnal, Rugby School.

Roberts, Jane, Birmingham Pupil Teachers' Central Classes.

Sabell, Lilian Gertrude, Birmingham Pupil Teachers' Central Classes.

Shelton, Eleanor, Leicester Pupil Teachers' Training College.

Smith, Ethel Shorthose, Leicester Pupil Teachers' Training College.

Smith, Mabel, University of Birmingham (Day Training College).

Todd, George William, Waverley Road Higher Grade School, Birmingham.

Vernon, Evelyn Lorna, King Edward's School, Aston, Birmingham.

Wain, Beatrice Chaplin, Leicester Pupil Teachers' Training College.

Watson, Lily, Birmingham Pupil Teachers' Central Classes.

Woolley, John, University of Birmingham (Day Training College).

#### Class II.

Adams, Gertrude, Leicester Pupil Teachers' Training College.

Allen, Rhoda, University of Birmingham (Day Training College)

Baker, William Thomas Smith, University of Birmingham (Day Training College).

Chatwin, Robert Boughton, King Edward's School, Birmingham.

Dudley, Sidney Edwin, "George Dixon" Secondary School, Birmingham.

Eldridge, John Edgar, University of Birmingham (Day Training College)

Faulkner, Mabel Miles, University of Birmingham (Day Training College).

Finney, Lizzie Ellen, University of Birmingham Day Training College).

Goldby, Maud Mary, Leicester Pupil Teachers' Training College.

Grove, John Alfred, "George Dixon" Secondary School, Birmingham.

Grove, James Percival, Private Study.

Hamnett, Alfred John, King Edward's High School, Aston Manor, Birmingham.

Harbutt, Lilian Maud, University of Birmingham (Day Training College).

Harris, Bertha, Leicester Pupil Teachers' Training College.

Hicks, Alice, Birmingham Pupil Teachers' Central Classes.

Johnstone, Fergus Lee, "George Dixon" Secondary School, Birmingham.

Jones, George James, Cleobury Mortimer College.

Joyce, John William Henry, Leicester Pupil Teachers' Training College.

Laugher, Ethel Marion, University of Birmingham (Day Training College).

Lawley, Annie, University of Birmingham (Day Training College).

McLauchlan, Margaret Agnes, University of Birmingham (Day Training College).

Magson, Beatrice Fanny, Birmingham Pupil Teachers' Central Classes.

Masters, Gertrude Emma, University of Birmingham (Day Training College).

Minahan, Clara, King Edward's School, Aston, Birmingham.

Poole, Granville, University of Birmingham (Day Training College).

Robson, Mary Eveline Lindsey, University of Birmingham (Day Training College).

Sambrook, Ernest John, University of Birmingham.

Taylor, Harry, "George Dixon" Secondary School, Birmingham.

Tyers, Mildred Anice, Birmingham Pupil Teachers' Central Classes.

Walker, Cranston, Private Study.

Wetherall, Clara Elizabeth, University of Birmingham.

Wilson, Henry Maurice, University of Birmingham (Day Training College).

*Completed Examination.*

Austin, Harold Austin, University of Birmingham.

Clarke, Frank, University of Birmingham (Day Training College)

Gough, Minnie Margaret, Private Tuition.  
 Holroyd, John Othie, University of Birmingham.  
 Smith, Gavin Hildick, Private Study.  
 Whitehouse, James, Private Tuition.

*Passed Examination in four subjects.*

Austin, Norman Arthur, University of Birmingham.  
 Hemming, Arthur Howard, Private Tuition.  
 Page, Lewis Charles, University of Birmingham (Day Training College).  
 Simmons, Arthur, Finstall School.  
 Trego, Helen Beatrice, University of Birmingham (Day Training College).

## MATRICULATION EXAMINATION.

SEPTEMBER, 1903.

### Class I.

Adams, John, King Edward's School, Birmingham.  
 Gray, Elsie Lavinia, University of Birmingham (Day Training College).  
 Harrison, Ernest Claude, King Edward's School, Birmingham.  
 Heptinstall, Walter, University of Birmingham (Day Training College).  
 Lamb, James Victor, ———  
 Lillie, Denis Gascoigne, United Services College, Westward Ho ! and Private Tuition.  
 Loach, Arthur William, King Edward's School, Five Ways.  
 Moulson, Gertrude Caroline, Birmingham Pupil Teachers' Central Classes.  
 Richardson, Louise Maud, Birmingham Pupil Teachers' Central Classes.  
 Smart, John Deiro, Higher Elementary School, Aston.  
 Smith, Norman Elliott, University of Birmingham and Private Tuition.  
 Taylor, Charles Henry, King Edward's School, Birmingham.  
 Terry, Harold Cairns, Private Tuition.  
 Wheeler, Harold Walter, University of Birmingham (Day Training College).

## Class II.

Atkinson, Joseph, Hopton Congregational School, Mirfield.  
 Blaker, Reginald Bromhead, Cathedral School, Hereford.  
 Browning, Harold Gordon, University of Birmingham.  
 Wassall, Mary, Private Tuition.

*Completed the Examination.*

Dearnley, Edith, Birmingham Pupil Teachers' Central Classes.  
 Goode, John Frederic, University of Birmingham (Day Training College).  
 Leon, Patrice Sylvester, St. George's College, Kingston, Jamaica.  
 Morley, Edith Mary, King Edward's High School for Girls, Birmingham.  
 Page, Reginald Percival, University of Birmingham.  
 Pinchbeck, Albert, University of Birmingham (Day Training College).  
 Quinney, Horace, University of Birmingham (Day Training College).  
 Sherratt, Ellen, Birmingham Pupil Teachers' Central Classes.  
 Stackhouse, Percy Charles, University of Birmingham (Day Training College).

*Passed the Examination in Four Subjects.*

Austin, Harold Austin, Wellington College, Salop, and Private Tuition.  
 Bentley, Raymond Pinder, University of Birmingham (Day Training College).  
 Bryce, William Alexander, University of Birmingham and Aston Technical School.  
 Gough, Minnie Margaret, Private Tuition.  
 Jones, Archibald John Mason, Private Tuition.  
 Moon, George Bassett, Irvine House School, Derby.  
 Newton, Herbert George, ———  
 Price, Walter Longsdon, Repton School.  
 Smith, Gavin Hildick, Private Study.  
 Thompson, Roland, University of Birmingham (Day Training College).  
 White, Eric Arthur, British School, Aylesbury.  
 Woodhouse, William, University Correspondence, London.  
 Wright, Harry, Alfred Street Board School, Rushden.

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## SCHOLARSHIPS.

### University.

- 1901. Richard Thomas Francis Kirk.
- 1901. Percy Phillips.
- 1902. Onera Amelia Merritt.
- 1902. Douglas Frank Twiss.
- 1902. Winifred Lee.
- 1904. Arthur Hubert Cox.

### Research.

- 1902. Percy Phillips.
- 1902. Margaret Mellard Hawkes.
- 1902. Henry Thomas.
- 1902. Caroline Edith Morgan.
- 1903. Percy Phillips.
- 1903. William Ernest Stephen Turner.
- 1903. Frank Ernest Willecox.
- 1903. Winifred Lee.
- 1904. Augustus Daniel Inms.
- 1904. William Ernest Stephen Turner.

### Heslop Memorial.

- 1887. William Allport Brockington.
- 1889. John Nelson Wallis.
- 1891. Maud Elizabeth Ward.
- 1893. George Wilfred Samson.
- 1895. Edward William Winckle.
- 1897. Frederick John Marrian Stratton.
- 1899. Egbert Hockey Magson.
- 1900. Egbert Hockey Magson.
- 1901. John Monkhouse Orwin.
- 1903. Robert Viner Stanford.

### John Corbett.

- 1895. Willie Hutt.
- 1896. Arthur James Barnett.
- 1897. John Frame.
- 1898. Ernest Gold.
- 1899. Frederick John Marrian Stratton.
- 1900. Jacques Katz.
- 1901. Jacques Katz.
- 1902. David Wallace Plant.
- 1903. William Frederick Warth.

**Theodore Mander.**

1903. Evelyn Marion Hickmans.

1904. Ethel May Doughty.

**Priestley in Chemistry.**

1895. Thomas Stewart Patterson.

1895. Thomas Slater Price.

1895. William John.

1896. Frederick Malcolm Wharton.

1896. John McCrae, Jun.

1896. John Harger.

1897. Henry Aston.

1897. Edward Daniel Mason.

1897. Arthur Lathwood.

1898. Henry Leonard Heathcote.

1898. Robert Howson Pickard.

1898. Bertram Vincent Storr.

1899. Clarence James Green.

1899. Arthur Thomas Etheridge.

1899. Arthur Slator.

1900. Arthur Slator.

1900. Robert Crosbie Farmer.

1900. Samuel Andrews.

1900. John Alexander Lloyd.

1901. Norman Leslie Gebhard.

1901. Caroline Edith Morgan.

1901. Mary Beatrice Thomas.

1901. Fred John Warth.

1902. Norman Leslie Gebhard.

1902. Ernest Ormerod.

1902. John Albert Newton Friend.

1903. Fred Barrow.

1903. Edward Done.

1903. Douglas Frank Twiss.

1904. Fred Barrow.

1904. Edward Done.

1904. Herbert Bryan Thompson.

**Bowen in Engineering.**

1895. William George Hibbins.

1896. Blamey Stevens.

1896. William Arthur Taylor.

- 1896. William George Hibbins.
- 1897. James Patrick Wood.
- 1898. Alfred Ayre Mellor.
- 1898. Samuel Benjamin Priest.
- 1898. James Patrick Wood.
- 1899. Douglas Howard Bishop.
- 1899. John Ernest Jagger.
- 1900. John Ernest Jagger.
- 1901. Richard Percival Hulse.
- 1901. Connel William Long Alexander.
- 1901. Harry Bryant Matthews.
- 1902. Harry Bryant Matthews.
- 1902. John Keats Catterson-Smith.
- 1903. John Keats Catterson-Smith.
- 1903. John Walter Fidoe.
- 1904. Alfred William Lambourne.

### **Bowen in Metallurgy.**

- 1895. George Parker Royston.
- 1896. George Parker Royston.
- 1898. Harry Westwood Waldron.
- 1899. Harry Westwood Waldron.
- 1899. Henry Julius Salomon Sand.
- 1900. Henry Julius Salomon Sand.
- 1901. Leo John Longstaffe.
- 1902. Joseph Herbert Colley.
- 1903. Thomas William Picken.
- 1904. Thomas William Picken.

### **1851 Exhibition.**

- 1891. John Joseph Sudborough.
- 1892. Lionel Simeon Marks.
- 1893. Arthur Lapworth.
- 1895. Robert Howson Pickard.
- 1896. Thomas Slater Price.
- 1897. Gilbert Harding Shakespeare.
- 1898. Arthur Henry Reginald Buller.
- 1899. Henry Leonard Heathcote.
- 1900. Frank Horton.
- 1901. Arthur Slator.
- 1902. John Alexander Lloyd.
- 1903. Norman Leslie Gebhard.
- 1904. Percy Phillips.



**Harding.**

1903. Amy Helen Freeman.  
1904. Montagne Sydney Woolf.

**Queens.**

1894. William Billington.  
1895. Charles Henry Bullen.  
1896. William Henry Wynn.  
1897. Arthur Augustus Russell Green.  
1898. Leonard Gregory Parsons.  
1902. Mary Clarke.  
1902. Joseph Bernard Dawson.  
1902. Robert Beatson Dennis Hird.  
1903. Leonard George Joseph Mackey.  
1903. Arthur Addison Sanders.  
1903. John Dale.  
1904. Alfred Ernest Remmett Weaver.  
1904. Norman John Launcelot Rollason.  
1904. Frederick Wilkinson.  
1904. John Dale.

**Sands Cox.**

1892. William Bird Herapath Wood.  
1894. Herbert Charles Quirke.  
1896. Michael Joseph Quirke.  
1900. Claude Edward Tangye.  
1901. Francis Brett Young.  
1904. Humphrey Francis Humphreys.

**Ingleby.**

1892. George Arthur Wilkes.  
1892. John Orton.  
1892. Francis Herbert Marson.  
1893. Edward Geoffry Walls.  
1894. Frederic Gerald Messiter.  
1895. Alexander Wathen Nuthall.  
1896. Joseph George Emmanuel.  
1897. Harold Edward White.  
1897. John Aston Swindale.  
1898. Charles York Flewitt.  
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## FORM OF BEQUEST TO THE UNIVERSITY.

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I BEQUEATH the sum of £ , free of legacy duty, to the University of Birmingham. And I direct that the said legacy and the legacy duty thereon shall be paid exclusively out of such part of my personal estate as may by law be bequeathed for charitable purposes, and preferably to any other payment thereout. And I direct that the same legacy shall be paid to the Treasurer for the time being of the said University, whose receipt shall be an effectual discharge for the same, and that the same shall be applied \* [in the discretion of the Council of the said University to the general purposes thereof, or to such special purposes as the said Council shall determine.]

\* NOTE.—If any special directions or conditions are to be attached to the legacy, the part in brackets to be omitted and the special matter inserted.



## APPENDIX.

**The Walter Myers Travelling Studentship.**

## D E E D

ESTABLISHING "THE WALTER MYERS TRAVELLING  
STUDENTSHIP FUND."

**This Indenture** made the 10th day of December 1901 between THE UNIVERSITY OF BIRMINGHAM (incorporated by Royal Charter on the 24th day of March 1900 and acting with the powers conferred upon them by the Birmingham University Act 1900 and hereinafter called "The University") of the first or one part and GEORGE MYERS of Thornfield Edgbaston in the City of Birmingham of the second or other part. **Whereas** the said George Myers in order to promote original research by a Graduate of the Birmingham University and in memory of his only son Walter Myers M.A., M.B., B.C. (of the University of Cambridge and B.Sc. of the University of London and a former student of the Mason University College of Birmingham) who contracted yellow fever at Brazil while investigating the causes of such disease on behalf of the Liverpool School of Tropical Medicine hath proposed to give to the University of Birmingham the sum of £3,000 to be held by the University for the purposes hereinafter set forth. **Now therefore this Indenture witnesseth** that in consideration of the sum of £3,000 paid to the Treasurer of the University on the day of the date hereof (the receipt of which sum the University do hereby acknowledge). The Birmingham University for themselves and their successors do hereby covenant with the said George Myers that the Birmingham University and their successors shall stand possessed of the said sum of £3,000 and the securities on which the same shall be from time to time invested and the accruing income of such investments upon the trusts and for the purposes hereinafter expressed and declared that is to say:—

1.—The University shall invest the said sum in any securities on which Trustees may for the time being be authorised by law to invest trust moneys.

2.—The said sum and the investments thereof shall be called and distinguished from the other moneys and investments of the University by the name of "The Walter Myers Studentship Fund" and the University shall at all times hereafter keep an account of this fund and the investments and income thereof separate and apart from the general or any other funds or accounts of the University.

3.—The University shall apply the income of the said investments in payment to the holder for the time being of a Studentship to be called "The Walter Myers Travelling Studentship" of the sum of £150 payable in advance by quarterly instalments such holder to be nominated and appointed each alternate year for one year only. Provided nevertheless that in the case of a student of exceptional merit and ability the University may allow such student to hold the scholarship for a second year but the sum payable to such student for the second year shall not exceed £90.

4.—In case in any year in which the Studentship is offered no candidate shall present himself or herself or in case no one of the candidates shall in the opinion of the hereafter mentioned Committee be of sufficient merit to be nominated the income of the Studentship shall be retained by the University and the Studentship offered again in the succeeding year and so on *toties quoties* until a candidate shall be nominated and appointed in manner hereinafter provided. In every case of suspension of the Studentship the income shall be invested and accumulated and if in any year the suspended income and its accumulation shall be sufficient then another Studentship may be awarded annually so long as the income will allow.

5.—The University shall on or before the 10th day of July in each year in which the Studentship is offered advertise the conditions in two Medical Journals



published in London and two newspapers published in Birmingham and shall also print a copy of these presents in the University Calendar in each year.

6.—The Studentship shall be awarded irrespective of sex sect or party but in the case of two applicants of equal merit a native of Birmingham shall have the preference.

7.—The merits of the candidate for the Studentship shall not be ascertained by the results of any form of competitive examination but by a Committee consisting of the following persons namely: The Dean of the Medical Faculty of the University and the Professors of Pathology and Chemistry in the University and the External Examiner in Pathology appointed by the University. The External Examiner shall be Chairman of the said Committee with an original and a casting vote and the Studentship shall not be awarded at any meeting unless the External Examiner is present. Subject as aforesaid the Committee shall ascertain the fitness of the candidate in such manner as they think proper and report to the Council as soon as possible after the first day of October in the year in which the Studentship is offered and the election shall then be made by the Council of the University.

8.—The Studentship shall be tenable at the University of Berlin Frankfort or Freiburg in Baden or at some University or Hospital not in Great Britain or Ireland appointed from time to time by the Council of the University on the recommendation of the Senate.

#### QUALIFICATION OF CANDIDATES.

9.—Every Candidate for the Studentship must be (1) Under the age of thirty years at the date of his or her application and (2) a graduate of the Birmingham University and (3) must have attained the degree of M.B. in such University and the degree of B.Sc. in the University of Birmingham or of London Cambridge or Oxford.

#### CONDITIONS OF TENURE.

10.—The conditions of holding the studentship shall be as follows :—

- (a) The holder shall engage in the study of Pathology in Berlin Frankfort or Freiburg or such other place of study not in Great Britain or Ireland as shall be appointed as provided by Clause 8.
- (b) In clinical work combined with pathological research at such Hospitals as the Council of the University on the recommendation of the Senate shall appoint either at Berlin Frankfort or Freiburg or at any other University or Hospital not in Great Britain or Ireland which may from time to time be approved of as aforesaid.
- (c) The student during the tenure of his or her studentship shall not systematically follow any business or profession or engage in any other work which in the opinion of the Council would interfere with his or her researches.

11.—In case the student shall publish in any way the results of his or her investigations during the studentship he or she shall where practicable describe himself or herself as the “Walter Myers Student” of the University of Birmingham.

**In witness** whereof the University hath hereunto set its seal and the said George Myers his hand and seal the day and year first aforesaid.

The Seal of the University of Birmingham was hereto affixed by the undersigned duly authorised by a resolution of the Council to affix such seal.

Seal of  
University.

F. C. CLAYTON.

R. S. HEATH.

GEO. H. MORLEY,

*Secretary.*

Signed sealed and delivered by the said George Myers in the presence of

GEORGE MYERS (*L.S.*)

G. J. JOHNSON,

Solicitor, Birmingham.

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